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# THE FORUM OF EDUCATION

A JOURNAL OF ENQUIRY & RESEARCH  
IN THE PSYCHOLOGY, PHILOSOPHY  
AND METHOD OF EDUCATION

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# The Forum of Education

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Edited by

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# The Forum of Education.

VOL. III, No. 1.

FEBRUARY, 1925

## Suggestion, Reasoning, and Arithmetic.

By E. J. G. BRADFORD.

BEFORE considering the rôle that suggestion and reasoning play in that type of mental activity which is associated with arithmetical work in school, it is advisable to know what the terms suggestion, reasoning, and arithmetic connote. Writers are fairly well agreed as to the meaning of the first two terms, though it may be doubted whether all educational writers distinguish clearly between reasoning and critical analysis. Except for this difference we are so far on common ground; hence two single quotations\* may serve to define what the terms suggestion and reasoning mean.

“When a statement of fact is made a healthy mind proceeds forthwith to use upon it its powers of criticism. It asks if it is consonant with other facts already experienced. . . . This critical attitude is present in the young, and especially during the years of adolescence. . . . The process of presenting truths in such a manner that a critical attitude of mind is not aroused in the recipient may be called suggestion. . . . The pupil is so much occupied with the details of the work in connection with which the truths are conveyed that he has no leisure to adopt a critical attitude, and consequently his contrariant ideas do not develop.”<sup>1</sup>

“Before expecting a child to reason, we now require that he should see the difficulty clearly in the form of a question. He should watch that his final conclusion really answers the question with which he set out, and so solves the difficulty which first aroused his interest. . . . Further, in the most explicit forms of reasoning, we seem immediately to apprehend, not only the ideas or objects associated, but the relations between them—the manner in which they are associated. . . . The more primitive forms of reasoning are based upon association by similarity. . . . The child here argues, not from the particular to the general, nor from the general to the particular, but from the particular to the particular. Such ‘reasoning by analogy’ is perhaps the commonest feature of the child’s first intellectual efforts. . . .”<sup>2</sup>

\*Since the main plea in this article is that arithmetic, in the school, shall be regarded as an educational instrument and not as a subject of study, most of the quotations introduced are taken from the writings of educationists—those who are concerned with the manner of using the instrument—and not from the writings of psychologists and mathematicians, whose main interest is the development of their particular subject.

<sup>1</sup> “Encyclopædia and Dictionary of Education.” Suggestion: by W. M. Keatinge.

<sup>2</sup> “Encyclopædia and Dictionary of Education.” Reasoning: by C. Burt.

When we attempt to discover the purpose of arithmetic as a school subject, we find that writers either shirk the issue or talk in generalities such as culture, disciplinary value, or utilitarian value.

"There are three main purposes, the practical, the educational, and the scientific. . . . From the educational point of view, the value of arithmetic has usually been regarded as consisting in the stress it lays on accuracy. . . . The development of physical science has tended to emphasize an exactly opposite aspect, viz., . . . approximation."<sup>1</sup>

"It is not denied, save by a few, that arithmetic has a culture value that is mingled with its utilitarian value, although like the culture of letters, of art, and of science in general its exact bounds could not be marked out even if it were desirable to do so."<sup>2</sup>

Its value lies in its power to correct a vice and form a virtue. "The vice is the habit of mental distraction; the virtue, the habit of continuous attention." The writer who quotes this comments as follows: "In the first place arithmetic is of ancient origin, and from its history an undue importance has often been attached to it."<sup>3</sup>

"And I believe that arithmetic, if it deserves the high place that it conventionally holds in our educational system, deserves it mainly on the ground that it is to be treated as a logical exercise."<sup>4</sup>

"When strikes take place . . . a trained mind capable of criticising every figure published . . . is a necessity to every citizen."<sup>5</sup>

"It should be the purpose to-day to get the greatest educational advantage from the subject for the greatest number. A good arithmetician must be, to a considerable extent, a machine; but he should be a thinking machine . . . The value of a problem does not lie in getting the answer, but in the mental exercise which its solution provides."<sup>6</sup>

"To develop the capacity to apply the principles of numbers is after all the final aim of the teaching of arithmetic; and the extent to which the pupil can bring his knowledge to bear upon the common affairs of life is the real measure of his understanding."<sup>7</sup>

"Though mathematics has no direct and immediate effect in enabling the student to reason in other subjects, yet it has an indirect influence. It tends to render the mind more critically analytical in all its thought . . . mathematics stands out pre-eminently as the subject whose study in the primary school lends itself most . . . to the training in habits of critical analysis. . . . Mathematics in the primary school divides itself into two parts—arithmetic . . . and geometry."<sup>8</sup>

An inspection of these quotations shows that the study of arithmetic may aim at a specific objective—accuracy (1), controlled attention (3), logic (4) and (6), critical analysis (5) and (8), or at more general objectives such as culture (2), utility (2) (1) and (5). At the back of such terms as

<sup>1</sup> "Encyclopædia Britannica." Arithmetic: W. F. Sheppard.

<sup>2</sup> "Cyclopædia of Education." Arithmetic: D. E. Smith.

<sup>3</sup> "Cyclopædia of Education." Arithmetic, Hygiene of: W. H. Burnham.

<sup>4</sup> "Lectures on Teaching." P. 291. J. G. Fitch.

<sup>5</sup> "Everyday Mathematics." F. Sandon. Preface.

<sup>6</sup> "Encyclopædia and Dictionary of Education." Arithmetic: A.C.J.

<sup>7</sup> "Mental Tests." P. B. Ballard. p. 191.

<sup>8</sup> "Principles and Methods of Teaching." J. Welton. Chap. on Maths. W. P. Welton.

"thinking machine," "critical analysis," and "mental exercise," lurks the formal training heresy. This heresy has been avoided by Dr. Ballard in quotation (7), but the antithesis in his description leads one to assume that the study of arithmetic in school is to develop manipulative efficiency and that it depends on native wit whether or no the student can use this manipulative skill in meeting life's problems. Whatever interpretation Dr. Ballard places on the term "principles of numbers" the ordinary reader will take it to be something equivalent to "manipulative skill." Welpton on the other hand seems to accept the formal training position quite frankly. He writes: "It tends to render the mind more critically analytical in all its thoughts." Sandon thinks that the study will develop "a trained mind capable of criticising every figure published," which really means that the critical attitude will be adopted towards all types of data, commercial, social, and political.

It would almost appear that there are only two alternatives, either to accept the doubtful "transfer of training" assumption as fact, or to admit that arithmetic is taught because of the utility of manipulative skill. But without assuming any transfer of training we can give arithmetical study a general value, we can provide examples of all the likely problems that a single individual will encounter, and thus achieve the greatest "advantage from the subject for the greatest number." We cannot be sure, however, that this method will give the required "mental exercise" for developing a genuine "thinking machine." The process of "getting the answer" is not thinking. Most people think hardest when they cannot get the answer. So long as the manipulation of figures will provide the answer, there is no real incentive for genuine thinking. Very few text books supply, intentionally, problems which are insoluble. In the chapter on Non-simple Proportion in "Easy Mathematics," Sir O. Lodge gives a few problems of this type, e.g., "If two peacocks can waken one man, how many can waken six?" "If a diamond is worth ten thousand pounds, what would 950 similar diamonds be worth?" The teacher is not restricted to proportion for thought-provoking problems, although such problems are more easily manufactured and follow more closely the logical form. e.g., "If I buy a kitchen armchair for 15s., and a drawing-room armchair for £3 10s. 0d., how much ought I to pay for a dining-room armchair?"

Although exception has been taken to Ballard's definition of the final aim of arithmetic, one must nevertheless admit that he recognises the danger of making arithmetic mechanical. He writes: "It is regarded as questionable wisdom to reduce problems to types. . . . It prevents him (the pupil), in fact, from reasoning the thing out. . . . The real danger lies not in recognition of type, but in working successively so many examples of the same type that the work becomes mechanical."\* Surely the danger is ascribed to the wrong cause. The real danger lies in encouraging the pupil to focus his attention on the *type* instead of on the nature of the *data* given in the problem. The "Tell me the rule and I'll work it" attitude of mind is almost indistinguishable from the "Spot the rule and work it" attitude. To put down as the final aim of arithmetic the development of "the capacity to apply the principles of

\* "Mental Tests." p. 191.

numbers" suggests very strongly that the idea of number was in the focus of consciousness of the writer. It is difficult indeed to discriminate between the significance of the phrases "Spot the rule and work it" and "apply the principles of numbers." Even if it be admitted that there is a fundamental distinction between the significance of the two phrases, yet, in so far as the attention of the pupil is *directed towards* the number or the type, it is *directed away from* the nature of the data given. This distraction does not pre-dispose to critical thought.\*

Why has so much effort been directed to developing fool-proof methods? Not to develop the critical ability of the child, but to ensure that, as far as is humanly possible, even the fools obtain correct answers. The mechanical manipulation of the four rules, and of an equation, will enable the pupil to obtain a considerable proportion of right answers. It is true that thought is necessary to work a proportion sum correctly *always*, but even here there is a 50% chance: the relation is either direct or inverse. A knowledge of the method of manipulating an

equation and the formula  $\frac{P \times R \times T}{100}$  will together do wonders in most

sums involving Interest. From the pure number point of view this is as much as the utilitarian requires. This much can be achieved by Standard V in the primary school. Then why is so much time given to this subject in the higher Standards? Largely because it is regarded as a valuable "mental exercise," and because it is assumed that it makes children think. Unfortunately the "mental exercise" is not one in critical thought. At the worst it is practice in acting on suggestion, at the best it is practice in reasoning by analogy in a superficial manner. It is an exercise in juggling with *number* and *type* rather than an exercise in wringing the essential meaning from the *data* given. Evidence in support of this statement is to be found in the results of the experiment described below.

The aim of the experiment was to discover how far the critical ability of the school child was brought into play during the ordinary arithmetic exercise. Five problems were given for solution. Care was taken to avoid suggesting that they were insoluble, because such a suggestion would have destroyed the normal "arithmetic" frame of mind.

#### PROBLEMS.

1. If the distance from Arles to St. Brieuc is 500 miles, and from Vire to St. Malo is 50 miles, how far is it from St. Brieuc to St. Malo?
2. If three tons of sawdust weight 60 cwt., how many cwts. will there be in two tons of iron, if iron is five times as heavy as sawdust?
3. A boy is 5 years old and his father is 35 years old. If his uncle is 40 years old, how old will his cousin be?
4. The temperature in April thirty years ago was 46 degrees, twenty years ago it was 42 degrees. What was the temperature in April five years ago?
5. If Henry VIII had six wives, how many had Henry II?

---

\*c.f., last sentence of quotation from Keatinge given above.

The method adopted in giving the test was as follows: Blank papers were distributed and the children were asked to fold them into two halves. They were then told that they would be given some problems, with which they would be required to do one of two things: (a) If they thought they could solve a problem they were to show the working on the left-hand side of their paper; (b) If after reading the problem through they thought they could not work it out, they were to give a reason for their inability to do so on the right-hand side. On the blackboard the following was written:—

If you can.  
Show the working here.

If you can't.  
Say why here.

The question papers were then distributed and read through aloud to the class. The children were told to work the problems in the order given, and that four minutes would be allowed for the consideration of each. They were also told that they could work as rapidly as they chose, but that the second problem must be attempted when four minutes had elapsed, the third problem when eight minutes had elapsed, and so on. The order given was "It is time to start the next problem. If you have not finished the last one, you can go back to it, if you have time, after trying this one." Great care was taken to avoid using the phrase "If the problem cannot be done."

Except for Problem 2, all numerical answers were counted as incorrect. If the child realised that a solution was impossible by arithmetical methods and said so, the answer was credited as correct. Most children who did not apply arithmetical methods were able to adduce some valid, if not adequate, reason. The numbers of such children appear below in the column headed "Reasons":—

Problem.	Worked.	Impossible.	Reasons.	Unattempted.
1	57%	7%	33%	3%
2	75% (Incorrect)	—	25% (Correct)	—
3	68%	8%	23%	1%
4	78%	5%	14%	3%
5	58%	15%	22%	5%

Roughly 60% of the children "apply the principles of numbers" without thinking about the nature of the data in which these numbers are imbedded. From this 60% may be deducted perhaps 20% of low-grade intelligence who cannot read *for instruction*.

The writer is inclined to agree with the class teacher, who suggested that one contributory cause for this obvious weakness in critical thought is to be found in faulty teaching method. He gave an example of the harassed teacher who replies to the careless or dull child's plea for further

assistance, "Never mind what they are. Call them stoves, gas-pipes or rabbits if you like." In other words, "Don't bother about the patter, get on with the sum."

A rather surprising result is the fact that there is little or no carry-over of enlightenment from one problem to the next. 40% see through the first problem, only 31% see through the third, while less than 20% succeed with the fourth. This is because the "patter" is different. The opponents of the transfer of training theory will say that such a result was to be expected. But no ordinary English boy or girl of twelve years of age who was not under the influence of suggestion provided by the school classroom, the arithmetic period, and the word "problem," would assume this year's weather to be dependent on that of last.

The tests were given in nine different classes, Standard VII and VIII (often combined in one class). Two classes were composed of girls, six of boys, and one was mixed. The small number of eleven year and fourteen year old children are not included in the table below. The mean class score varied from three-and-a-half correct answers to half an answer correct. (The test was also given in three classes of Standard VI children, two mixed and one of girls. The number of children who could see through any of the problems was so small that further tests in Standard VI were discontinued.) The numbers are too small to be a reliable guide as to the existence of any sex difference, but there is little suggestion of any such difference among the children tested:—

Number of correct answers	0	1	2	3	4	5
Number of children	185	76	66	35	38	36
Critical ability	Dormant	Dawning.		Developed.		
All children (12 and 13)	42%	33%		25%		
12 year old children	47%	29%		24%		
13 year old children	40%	34%		26%		

The school atmosphere and teaching methods have both been suggested above as contributory causes producing these results. There are probably others. Few parents, however, would agree to postulating as a cause, the statement that children of twelve and thirteen are generally uncritical. It isn't that the child cannot criticise but rather that he does not. Another possibility can be found in the nature of the problems set. Each problem makes a demand on the child for some special knowledge wherewith to check the relationship of the given premises. It may be that a change in the nature of the problems would give different results. It is, however, difficult to think of more easy and obviously absurd problems than the one relating to the matrimonial propensities of kings. In order to test the effect of changing the problems the following set were given in three other schools to five classes, one composed of girls, one of boys, and three mixed. The age range was from eleven to fourteen years, but the great majority of children were either of twelve or thirteen years of age.

## PROBLEMS.

1. How fast is a cloud moving across the sky, if from my bed, I watch it cross my window one yard wide in 1 minute? Give the answer in miles per hour.
2. Arr and Co. make a profit of £2,000 and pay interest at the rate of 10% for the year. What rate of interest ought Bey and Co. to pay if they made a profit of £4,500 in the year?
3. A Frenchman gives me 200 kilograms of coffee in exchange for 400 lbs. of tea. How many pounds of salt ought I to give him in return for 75 kilograms of pepper?
4. If I have room on an envelope for 24 penny stamps, how much will it cost me to fill up the same space with 1 franc stamps? A franc is now worth 3d. in English money.
5. A ten horse-power motor van containing 1 ton of coal weighs  $2\frac{1}{4}$  tons. How much will three twenty horse-power vans each containing 2 tons of coal weigh?

The problems were given to Standard VII and VIII under the same conditions as the previous set, except that they were written on the blackboard instead of being cyclostyled on sheets of paper. The three schools in which these tests were given are of a type somewhat superior to those in which the other tests were given.

Number of correct answers .....	0	1	2	3	4	5
Number of children .....	213	37	8	2	2	1

The problems did not appear to be of quite uniform difficulty. But the small number of correct solutions makes a generalisation very unreliable.

Correct solutions .....	Problem 1.	Problem 2.	Problem 3.	Problem 4.	Problem 5.
	19	6	18	20	9

One conclusion that can be drawn from the results of the application of the two test papers is that arithmetical work is not done in a critical frame of mind. If such a conclusion is justified then arithmetic as a school subject is a poor instrument for developing the power of "critical analysis," at least as taught at present in many schools. This is so because teachers have their thoughts directed to what arithmetic *is* rather than to what it *is for*. "Arithmetic is both a science and an art. It is a science because it investigates the properties of numbers and establishes general principles based on those investigations. It is an art insomuch as it deals with various methods of using numbers."\* And one might add, it is an animal in so far as it is a white elephant in the upper classes of the elementary school.

\* "A Primer of School Method." Dexter and Garlick. P. 89.

What a splendid training for citizenship is this arithmetic by suggestion ! But who is to blame ? Few will deny that the efficiency of school and teacher is judged largely by the number of right answers obtained from the pupils in the school or class. Can the teacher be blamed for supplying what is required of him ? The shadow of the Revised Code of 1862 still haunts the precincts of the classroom in most schools between the hours of 9-45 a.m. and 10-30 a.m. Should children be allowed to leave school the slaves of suggestion yet able to manipulate figures ; or should they be started in the wider world as rational beings who are possibly not quite perfect as calculating machines ? There can be no doubt as to which of the alternatives we should turn to as our goal. "To apply the principles of numbers" must *not* be the final aim of arithmetic in school. The present weakness arises from the exalting of the god of Number at the expense of the greater deity of Thought. "To apply the principles of rational thought" is a formula that will include the whole aim of education on the intellectual side. It is only because each subject is regarded as an entity in itself that we are faced with the difficulty of discriminating between school-arithmetic and arithmetic, between school-geography and geography, school-history and history. If we must *teach* arithmetic up to Standard V, we should certainly *use* arithmetic during the rest of the school course, not as a means of practising processes with numbers but of developing facility in rational thought.

(It is only fair to state that Dr. Ballard disagrees entirely with the writer's interpretation of the phrase "apply the principles of numbers." No modification in the interpretation has been made because other readers of "Mental Tests," who have been consulted, interpret the phrase in a sense similar to that given above.)

Evidence as to the absence of critical thought in answering arithmetical problems is, in itself, no real proof of the influence of suggestion in the reaction of the children to the problems. That suggestion does play an important part in the solution of the problems can be shown by comparing the relative success of those to whom the "dud" type of problem is a novelty, and of those to whom similar problems had previously been given.

A comparison of the answers of the sophisticated and of the unsophisticated shows that the number of correct answers suffers an appreciable drop when there is a doubt in the child's mind as to whether the premises allow of a conclusion, or as to whether arithmetical operations will furnish a valid solution.

Two sets of problems, one of which was a "dud" set, were given to two groups of children. One group was composed of six classes of children who had never met "dud" problems ; the other group was composed of five classes of children who had been tested with the first set of problems referred to in this article. There were 249 children in the first group and 229 in the second ; all were drawn from Standard VII and Standard VIII. The answers to the "dud" problems were classified as Correct, Reasoning Invalid, or Worked. The classification adopted for the answers to the plain arithmetical problems was Correct, Reasoning Invalid, or Wrong (arithmetical process).

The time arrangements for these two sets of problems were the same as for the previous sets, namely, four minutes each problem.

## SUGGESTION, REASONING, AND ARITHMETIC

Problems A were given first, question and answer papers were collected, and then Problems B were distributed.

### PROBLEMS A.

1. What is the weight of a sofa or couch that is 6ft. 6in. long and 3ft. wide and 3ft. high, if each cubic foot of sofa weighs 4lbs. ?
2. A notice in a shop window reads : " A gramophone and twelve records for £4 15s. 0d." How much did the shopkeeper pay for his whole stock of twenty gramophones and 240 records ?
3. A train 300 yards in length passes through a tunnel in three minutes. How fast is the train moving ? Give your answer in miles per hour.
4. When bricklayers' wages are 2s. per hour it costs £500 to build a house. How much would it cost to build the same house if the bricklayers' wages were increased by 6d. per hour ?
5. If the insurance agent says that a man of 25 years has to pay 10s. a month, and a man of 35 years 12s. a month in order to get £200 at death, how much ought a man of 85 years to pay per month in order to get £200 at death ?

### PROBLEMS B.

1. What is the weight of a full box of soap that is 6ft. 6in. long, 3ft. wide, and 3ft. high, if each cubic foot weighs 24lbs. ?
2. A notice in a shop window reads : " A gramophone and twelve records for £4 15s. 0d." How much money will the shopkeeper take if he sells all his stock of twenty similar gramophones and 240 similar records ?
3. A train 300 yards long passes a signal post in three minutes. How fast is the train moving ? Give your answer in miles per hour.
4. When bricks cost 2s. per dozen, my bill for bricks to build my house amounts to £50. How much would the bill amount to if the price were suddenly raised by 6d. per dozen ?
5. If the insurance agent says that it will cost me 10s. a month to get £200 at death, and 12s. 6d. a month to get £250, and 15s. a month for £300, how much will it cost me per month to insure for £500 at death ?

### *Unsophisticated.*

School.	Sex and Number	Std.	Problems A.			Problems B.		
			Correct.	Invalid.	Worked.	Correct.	Invalid.	Wrong.
HB	21 Boys	VIII	0.6	0.0	4.4	4.5	0.0	0.5
	30 Boys	VII	0.1	0.0	4.9	4.4	0.0	0.6
CC	51 Boys	VII	1.1	0.7	2.2	4.2	0.4	0.4
	49 Boys	VIII	0.6	0.0	4.4	4.8	0.0	0.2
HG	52 Girls	VIII	0.0	0.0	5.0	4.7	0.0	0.3
	46 Girls	VII	0.0	0.0	5.0	3.0	0.0	2.0
Mean	249 Children		0.4	0.1	4.5	4.2	0.1	0.7

## Sophisticated.

MS	12 Girls	VIII	2.0	1.3	1.7	2.8	1.8	0.4
	37 Girls	VII	1.3	1.4	2.3	2.0	1.2	1.8
	30 Boys	VIII	2.4	1.3	1.3	3.9	0.8	0.3
	49 Boys	VII	1.3	0.7	3.0	3.4	0.8	0.8
	11 Girls	VIII	1.4	1.0	2.6	2.5	1.3	1.2
	40 Girls	VII	0.8	1.3	2.9	2.6	1.4	1.0
	12 Boys	VIII	2.3	1.1	1.6	4.8	0.0	0.2
	38 Boys	VII	2.1	0.8	2.1	3.6	0.7	0.7
	Mean	229 Children	1.6	1.1	2.3	3.1	1.0	0.9
BH	129 Boys		1.9	0.9	2.2	3.7	0.7	0.6
	100 Girls		1.2	1.3	2.5	2.4	1.4	1.2

The chief features of the above table of mean scores may be summarised briefly as follows :—

1. The amount of invalid reasoning appears to be about the same with both sets of problems.
2. Suggestion of impossibility of solution increases invalid reasons from 2% to 20%.
3. Suggestion of impossibility of solution reduces the number of correct answers to ordinary arithmetical problems from 80% to 60%.
4. Suggestion of impossibility of solution reduces arithmetical attempts at solution from 90% to 50% of "dud" problems.
5. Suggestion of impossibility of solution increases the number of valid reasons for not applying arithmetical processes to the "dud" problems from 8% to 32%.
6. Girls seem to be appreciably more suggestible than boys.  
Girls give 0.3% critical judgments *before* suggestion of impossibility.  
Boys give 15% critical judgments *before* suggestion of impossibility.  
Girls give 24% critical judgments *after* suggestion of impossibility.  
Boys give 38% critical judgments *after* suggestion of impossibility.  
Girls give 26% invalid judgments to "dud" problems *after* suggestion.  
Boys give 18% invalid judgments to "dud" problems *after* suggestion.  
Girls give 28% invalid judgments to ordinary problems *after* suggestion.  
Boys give 14% invalid judgments to ordinary problems *after* suggestion.

The general inference from the foregoing summary is that an appreciable number of right answers are obtained under ordinary classroom conditions not as the result of genuine critical thought but as the result of suggestion. When the pupils are put into such a position that they are compelled to rely on their own judgment in deciding as to the possibility of an arithmetical solution, then the number of arithmetically correct answers shows a considerable fall.

# The Place and the Function of the Training College in the National System of Education.\*

BY ERNEST BARKER.

MR. CHAIRMAN, Ladies and Gentlemen, I find it somewhat amusing that I, who was never taught, and never taught, in a training college should be addressing you, who are all experts in the matter. The amusement, I will at once hasten to explain, is not on my side ; I imagine that it must be upon yours. I do not know what qualification I have for addressing you except, perhaps, a touching belief on the part of Miss Lloyd Evans that I can speak with versatility, but without preparation, on a number of subjects. There is indeed one qualification which is a disqualification ! I have been sitting for some time on a Departmental Committee which is concerned with training colleges. Anyone sitting on a Government committee learns a good deal about Government and committees, and a little about the subject with which the committee is concerned. I have learned something about this subject, but I dare not say anything. The report will not be published till the end of the month of March or the beginning of April. The utmost I can say and the furthest to which I can go by way of divulgence of secrets is this : When I was young I always liked to be in a minority on any question, preferably in a minority of one ! As I grew older, I tried to attract a majority. On that committee sometimes I found myself in a minority and sometimes in a majority. In the light of that you must interpret what I now have to say.

I would ask your permission to say some few words by way of sketching the general educational background before which the training colleges stand and do their work. Down to the attainment of the age at which students take the Degree of B.A., there is a period of some seventeen years from the age of five to the age, let us say, of twenty-two. The natural division of those seventeen years is, I imagine, into three parts : the Primary part ; the Secondary part ; and the University part. Translating that into terms of age, by which I mean mental rather than chronological age, I should say that the three parts corresponded to three age periods, the period between five and round about eleven ; the period between round about eleven and round about eighteen ; and the period from eighteen to twenty-two.

That seems so simple that it hardly need be mentioned, but I need scarcely tell you that this simple articulation of a national system of education does not correspond to the facts. The actual division and the actual arrangements made by the Board of Education and by the Local Education Authorities, acting in concert with the Board, is of a different pattern. What you get actually, as opposed to the simple and somewhat ideal division I have mentioned, is after this order. You have in the first place a system of public elementary schools which are something quite different from what a moment ago I called primary schools. They are quite different for two reasons. In the first place, the public elementary

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schools carry children beyond the age of eleven, at which I take primary education to cease, and they give a continued education to the age of fourteen. In the second place (and this is a statement of the same point but in other words), the central, senior or intermediate schools—whatever name you use—though they belong to the system of public elementary schools, are concerned with what I may call post-primary, and what is virtually secondary work. I imagine that the origin of the grouping which gives us what are called public elementary schools was the idea of giving education to a certain social stratum, and, on the assumption that that stratum had only time for primary education, of giving only primary education to that social stratum. If that was the original idea of public elementary schools, the idea has been so modified that it is in the way of disappearance, and so far as I can see ought to disappear. It has been found in practice that you could not stop at primary education in the public elementary school. It has been found in practice that children of the social stratum originally envisaged are spilling over more and more, and in increasing numbers, into secondary schools ; and, vice-versa, it has been found that children of other strata are coming into the central schools, which are counted as part of the public elementary system. If you follow what I am trying to say, the basis of the Act of 1870 has disappeared ; and we need a system of reconstruction which shall abolish the category of public elementary school as such, because the underlying ideas are gone, and substitute some other category more on the lines of my original suggestion or division. So far of public elementary schools, which are one of the elements existing in the actual organisation of education that is with us now. Just a word, if you please, on secondary schools. Secondary schools, I imagine, are so called because of the way in which they are administered rather than because of anything that they do. The word "secondary" has no real educational connotation. It excludes schools which are doing secondary work in the true sense of the word, for example, central schools, and it includes schools which are not doing secondary work in the true sense of the word, for example, the preparatory departments of secondary schools, which are really doing primary work.

I have said these introductory words, and I now pass from them to the question which I think arises from them. When you are talking of the training of teachers, what do you mean ? Teachers of what or in what category ? Shall we accept the existing classification with all its anomalies, and shall we accordingly talk of teachers for public elementary schools (including central) as one separate and independent consideration, and again of teachers in other schools, whatever they may be (and they are somewhat of a curious amalgam) as another and separate problem ? Or shall we follow another alternative ; and shall we postulate a system which would be logical and educational, and talk, on the one hand, of teachers in primary schools—of whatever sort they may be—dealing with children from the age of five to round about eleven ; and on the other hand of teachers in secondary schools, dealing with children from round about eleven to about eighteen ?

The second alternative that I have put forward would be interesting, and it will soon have to be considered by all who think about education ; but if the second alternative be closely considered, we shall see that it would involve the transference of central schools to the secondary sphere,

to which they naturally belong, and on the other hand, the transference of the preparatory departments of secondary schools to the primary sphere, to which they belong. In a word, if in dealing with my problem I followed the second alternative, I should be postulating a complete transformation of the educational arrangements we have at the present time. The things would not be there in terms of which I was speaking, and if I talked in terms of what was not there I should certainly confuse myself, and possibly you. I shall therefore follow the first method of the two I mentioned, and speak more or less in terms of the existing system under which you have (1) public elementary schools, carrying on education to the age of fourteen and including central, senior or intermediate schools, in which you have primary education, and in which you have also secondary education ; and (2) the secondary schools, which include a great variety of types of institution.

On the basis of the existing division and organisation of education, what should be the preparation of teachers of these two main classes—teachers in public elementary schools and teachers in other schools in which children are handled to the age of 18 ? Before I try to answer that question, will you allow me to make a simple distinction which will run through what I have to say ? The preparation of teachers falls into two parts. There is the acquisition by the teachers and the imparting to the teachers of the substance or content of knowledge ; and, in the second place, the acquisition by the teachers and the imparting to the teachers of the technique of imparting that substance to others. Distinguishing accordingly between substance of knowledge and technique of imparting knowledge, I should say that, in respect of substance, more is required by the teacher in what I would roughly call the secondary class—excepting always the teachers of very junior forms in secondary schools and the preparatory departments of secondary schools. With those exceptions, I think you would agree that more in the way of substance is required from teachers in secondary schools for the simple reason that the children are older ; but I think you would agree that as much is required by teachers in central schools as by teachers in secondary schools, and for the same reason—that the children in central schools, just like those in secondary schools, are beyond the primary age.

Turning from substance to technique, I take it we should agree that more is required in the way of technique by teachers in public elementary schools, apart from central schools, for the simple reason that the children are younger and their handling is a more serious matter than the handling of older children ; but as much is required by teachers in junior forms of secondary schools and in the preparatory departments of such schools as by the teachers of public elementary schools.

From what I have said, I should deduce the proposition that a long education in point of acquisition of substance, an education long enough to embrace the University stage and University Degree, is needed by those who are intending to teach in secondary schools—excepting preparatory departments and junior forms—and by those who are going to teach in central schools, but it will not be needed by those who are going to teach in the lower parts of secondary schools and those who are going to teach in the public elementary schools, apart from central schools. Another proposition I should deduce is a proposition relating to technique ; and I

should say that technique in training is possibly not required—certainly I think it is not so much required—by those who intend to teach in the upper forms of secondary schools; probably it is required—I will put it no higher than probably—by those who are intending to teach in central schools; but it is certainly required by those who are intending to teach in junior forms and preparatory departments of secondary schools and in public elementary schools other than central.

I have now set the background, and so far as I can see, I have put the actors upon the stage; and I must now address myself immediately to training colleges. Here there arises a preliminary consideration which I have heard ventilated. Should the training college exist at all, or should all teachers have gone through both a secondary and a university education and have acquired the technique—if they need a period of acquisition of technique—in a university training department, or in some transmuted training college which is attached to, and incorporated in, a university as one of its training centres? Should the training college continue to exist or should it disappear? Should the university take over entirely its work; and if the physical building survive, should that be made into a university hostel or a university training centre? For myself, I feel quite clear that a training college should exist and continue to exist. I feel quite clear that it has, and will have, a function that entitles, and will entitle, it to exist. I must try, however, to establish as well as I can my belief, because, as I daresay you all know, there is a considerable body of opinion to the contrary. In trying to establish my belief, I would take one or two steps. The first step which I want to begin by taking is a declaration of belief that all teachers should have had a secondary education. I mean by that an education in a secondary school up to the school certificate age, and up to the attainment of the school certificate, followed by one further general year in such a school; but I also mean—and I beg your particular attention to this point—I also mean by a secondary education an education in a central school to the age of sixteen, followed by a further year of general education in a secondary school. I draw your particular attention to that, because I believe that a good education for future teachers can be gained in a central school. I believe that for certain teachers it may be the best form of preliminary education before entering into the training college, and I think it would be a very grave pity if a source of supply to training colleges from central schools were denied and stopped. What I say in this respect may relate more particularly to London and Manchester, and the selective central schools of London and Manchester; but if there be in the future, as I hope very much to see, a large and universal extension of the system of central schools, I should very much hope that those central schools would supply students to the training colleges who, after completing their four years' course, or five years' course, at a central school, have been transferred to a secondary school for a further general year, and after that enter a training college. That is the first step, a positive step.

The second step is a negative step. I do not believe that all the teachers of the country should necessarily have received a university education culminating in a university degree. I do not believe it for several reasons; and I want to spend a little time on explaining them. The first reason is that it would crowd the universities, doubling their

numbers, and, so far as England and Wales are concerned, increasing the numbers of students, I should say roughly, from 30,000 to 60,000 ; and that would affect their methods of work and their standards of attainment. I shall have something more to say on that. A second reason is that the honours curriculum, which is more and more the core of our universities, is in my view too specialised a curriculum to be generally taken by all teachers. About that I shall have something further to say. The third consideration I have in mind is that universities, with the exception of Oxford and Cambridge, being almost altogether non-residential, thousands of teachers, if the system of training colleges disappeared, would miss the great fundamental benefits of residence which they now get in training colleges. That residence is a very big thing ; it is bigger than one realises. Residence of that sort means a way of life and a kindling of a sense of conviction and of duty arising from contact and discussion. You know, the older I get the more I believe in the sovereign virtue of discussion and fresh contact of minds. You cannot get discussion at anything like its highest point except under conditions of residence. When I went to Oxford I still remember—it is thirty-one years ago—that my first term was a revelation to me. I remember sitting up again and again till four o'clock in the morning. I talked about art, about Shelley, about theology—I don't know what I did not discuss ; and I don't know what I owe to those discussions. But certainly they were all a kindling of the mind ; and without that I cannot see that anything I have ever been able to do would have been done.

I should, therefore, keep training colleges to train teachers for a two years' course and otherwise, at any rate, until universities have done three things : have greatly extended their capacity for dealing with students ; have increased the variety of curricula they can offer ; and have made themselves mainly residential. As I mention those three conditions, I venture to think it means keeping the training colleges for a very long time ; but I would keep them, and I want to develop them, in close contact with universities.

I have been thinking over this matter since I made my original notes ; and I would like to go a little further into the question whether it should be the ideal towards which we should all work, even if not practical at the moment or for years to come, that teachers should ultimately have all gone through a university course. I have thought about it as much as I could, and I cannot see myself any other policy than that of leaving it an open question. I am not sure myself about my ultimate ideal.

I want to put some things before you, partly, perhaps, by way of repetition of what I have said. In the first place, I would like to mention again the university trend towards honours courses. Take Oxford, which I know fairly well. At Oxford honours courses are taken by between 80 and 90 per cent. of students in residence. Take King's College, which I do not think is in any way exceptional—it is an exceptionally nice place ; but I mean it does not differ in this respect from others. I took out the figures lately, and I noticed that of our students who finished last July, 81 took honours in Arts and four took pass ; 39 took honours in Natural Science and 20 pass ; 21 took honours, and 19 pass, in Engineering. The percentages of pass students in Arts is 5 per cent. The universities of England more and more are setting in the direction of the honours course ;

and I feel, as I have said to you, that an honours course is not the right thing for a very large number of the teachers of the country. I am not quite sure whether it is the right thing in itself anyhow ; and whether we English do not run to the opposite extreme to the Americans. I have taught in an American college, and I do not want their way—I mean knowing something of everything—but perhaps we make too much of a fetish of knowing everything of something. But I do feel dubious of the policy of putting all teachers through the university, while it is set to honours courses.

There is another point I would take. Those who advocate the admission of all intending teachers to universities couple it with the advocacy of some special course in the university leading to what is called a Degree in Education, which would particularly fit teachers in public elementary schools for their vocation. I do not desire a multiplication of courses in universities : and I do not think I desire more vocationalism than exists in universities. Another thing comes into my mind when I think of this general question, and that is an idea connected with the size of universities. I sometimes think that as far as universities are concerned the fundamental thing to consider is : "How big do we want to be?" and "How big can we safely be?" When a university gets to anything like a ten thousand unit, it gets impersonal and mechanical, and loses vital things for which it exists.

Another consideration with regard to the general problem is this. If the training college is to be turned into a mere residential hostel with no members of the staff resident, or only one or two—university hostels are of that sort—it will not be the same as the present training college ; it will be an entirely different thing. Last of all, I will put before you a fundamental thing I feel in regard to voluntary training colleges in particular ; that they are based upon a basis which cannot readily be inserted into the modern university. The modern university tends to be non-confessional, and, by way of being non-confessional, it eliminates a certain, and to some of us a very fundamental, element of life.

I cannot quite see the disappearance of many of the training colleges of this country without the loss of things to which I attach the very highest and deepest value. On the whole, thinking it out, I want to leave it an open question what is to happen in the future. I am not sure about my ideal. I simply desire that training colleges should work out relations of closer contact with universities and see how they develop. You want progressive experimentation ; but you must not be quite sure about where you want to get—you must experiment.

I now come to another section of my subject. I am assuming the continued existence of the training college. What has the training college to do ? It has to take students from secondary schools who have had an education up to the school certificate stage plus a further year ; it has to take pupils from central schools ; and it has to handle students of both kinds. Now I want to keep the training college doing one main thing ; because every institution should concentrate upon one thing. That one thing will be the preparation of teachers for children to the age of fourteen, but ever so broadly, and the handling of all sorts of teachers for children to the age of fourteen. I consider that the training college may handle students in four different ways. It may keep many for the period of two

years, teaching them through those two years substance and technique, but, I hope, emphasizing more in the future technique. Secondly, it will send forward as many as possible of its students at the end of their two years' course for a third year; and—I hope you will agree with me—it will always encourage third year students to pass to the university for a year's course in some matter of substance: English, history, geography, and other things. Thirdly, it will have a percentage—I should say about 10 per cent.—who will be four-year students, and it will send that 10 per cent. to universities for a three years' course and train them itself for the fourth year. Fourthly, it will take students from university colleges or analogous colleges, such as colleges of music, and give them a year's training like the year its own fourth-year students receive, to fit them for teaching young children in general or special subjects such as music.

One thing, however, in my view, the training colleges will *not* do—many of you will disagree with me here—it will not prepare students for their university degrees concurrently with their preparation for teaching. I know that is a policy—and a policy adopted by some very good training colleges; but it is to my thinking a policy which can hardly in the long run work, because it means a double objective, and the distraction of the students and the institution. I would not absolutely forbid such training of students concurrently with the training for the teaching profession—there are places in which it may be necessary—but I should generally discountenance it.

The whole effect of what I desire would be that the training college would be more of a training college, that is, more concentrated on technique. Think of the four ways or categories of work which I have suggested. My third category would mean a training in which technique would be the primary thing. These fourth-year students would, of course, be undergoing training in technique. If you take my fourth category—training of students drawn from a university college or a college of music—there again the whole work would be work in technique. But I want to emphasize the element of technique in the training of two-year students—the students in my first category. I should venture to hope that training colleges would concentrate rather on the imparting of technique to two-year students than on teaching the substance of knowledge. I fancy, but I speak on the basis of imperfect knowledge, that the tendency of a good teacher in a training college is, because he or she is good, to concentrate on substance, and the better, perhaps, to concentrate the more. But I want to suggest this: that we have to assume in the future a secondary education which will make such concentration on substance and the mere academic qualifications less necessary; and we have to recognise that the method of presentation is more important to those who are going to teach young children and have to be taught how to adjust themselves to young minds. While one subject will continue—I should only want one—to be studied for its own sake in order to retain a high academic standard, other subjects will be studied more from the point of view of their presentation to children of a given age and with close attention to the technique of teaching.

I now come to the connection of training colleges with universities. I feel that it would not be a good thing that training colleges should be "Lone Wolves," as it were, or be attached only to the Board of Education on the

one hand and Local Education Authorities and Voluntary Societies on the other. If they were attached only in the latter way, they would stand largely alone in the system of education of children and young men and women. They would stand apart from the secondary schools, which are in no sense "Lone Wolves."

Let me speak of secondary schools in this connection. I have been much impressed by the close connection that I have found between secondary schools and the older universities. On the one hand the scholarship system of the universities, and not merely of the older, but also that of London, draws the best boys from the secondary school to the university and keeps the teacher in the school in touch with the teacher in the university. I well remember how, as a teacher at Oxford for about twenty years, I found myself drawn into constant contact with the teachers of my subject in schools. I had a letter from the history master at a secondary school the other day ; he told me he had just been up to a conference at Oxford on the scholarship system in his subject, and he was going to Cambridge for a similar conference with some history tutors there. The scholarship system does help to keep the secondary schools and the universities in contact ; and, generally, the system of university examination of secondary schools maintains such a contact. It was in that way that I got to know many of the secondary schools and of the headmasters and teachers of secondary schools. When I was a member of the Oxford and Cambridge Schools Examinations Board I found the connection grew closer and closer. In connection with this point which I am labouring, I would mention that we in London just lately have established a consultative committee between the heads of about half a dozen colleges of the universities and head masters and mistresses of the main London schools. We meet terminally. We have been able to write to the university, and get the university to alter its policy ; and to the London County Council, and get that body to alter its policy in at least one respect, which is no small achievement !

On that analogy I want to see training colleges attached to universities, not that the universities may get more power—the attachment must rather mean work—but that the universities may fulfil a duty they owe and I shall try to explain what I mean by that. I don't want training colleges or the Local Education Authorities or the Voluntary Societies to be afraid of the university ; I don't think the university, in wishing for contact, is a rival to the Local Education Authority or Voluntary Society ; it simply wants to help. What should be the methods of connection with the university ? One is that third-year students should be encouraged to go to the universities for an additional year. In London there are special facilities in that direction. We have one-year diploma courses in English and in history and in geography ; and I was just thinking before I came here that we might add a valuable thing by having a one-year course in mathematics, particularly for women teachers. Those courses are of value. I believe we have at my college twenty students from training colleges following the English diploma course by a full year's study.

Then I have mentioned four-year students, coming from training colleges to the university for the first three years of their course ; but that cannot be carried very far. If you had a percentage much above ten,

the danger arises of turning the training college into a mere hostel for the university. While I desire a percentage—I mentioned ten as an illustration rather than an actual figure—I do not think you can carry this system of connection to embrace any very large numbers.

Now these are two of the ways of contact between a university and training college; but they are only ways of connection of individual students with universities. It is by no means enough. I want a contact of the training college as a whole with the university; and now I have to suggest to you how a contact can be established with the training college as a whole. I want you to remember with me three things: first, that a university will have a training department analogous to a training college, with a Professor of Education and four-year students on the same footing as the four-year students I want also to see in training colleges; secondly, the living and friendly contact which can be established between a university and secondary schools through a system of examination; and, thirdly, what I have said in regard to consultative committees of the heads of university colleges and secondary schools. I want to put together a sort of simple scheme out of these elements and commend it to your attention. Take the last of the three things, the consultative committee. I would suggest to you it would be a very simple thing if you had a grouping of the training colleges round a contiguous university through a joint committee of representatives of training colleges and representatives of the university—a simple joint committee which might be in the first place informal, and which should have for its function to seek to discover what as a joint committee it can do to draw together the two elements represented upon the committee.

There are several things such a committee could do. In the first place, it could deal with the placing and the care of four-year students during their three years of study at the university. It could encourage and facilitate that coming over from the training college to the university. My own college has been very fortunate in being able to establish connections in regard to four-year students and third-year students, but I should like to see the system extended. The second thing to do would be to arrange for lectures to be delivered by members of the staffs of training colleges within the university and, vice-versa, lectures to be delivered by members of the staffs of universities within the training colleges. I know it is easy, sitting in your chair, to think of plans, and then find human prejudices interfere; but in London I see no difficulty in attempting that. I should expect, and I should welcome, in that connection, a feeling on the part of Professors of Education that they had some duty of getting into touch with training colleges as helpers. A third way in which elements of value might be got is the way of attraction of members of the staffs of training colleges to the university for aiding in research work in education. There is plenty of research work to be done in that way. A fourth thing which this joint committee might do might be the direction of graduates from the university to training colleges for proper professional training in their post-graduate year. I do not think a university need keep all students who wish to be trained, and if training colleges specialised in the fourth year, I think it would be the duty of the universities if they had a student who wished to do specialised work to send him to the appropriate training college.

But I believe that, beyond these things that I have mentioned, there is the whole matter of the co-operation of the university in the examination of the work of training colleges. You may think examination is a poor connection. Do not believe it. Some of the happiest times I have spent have been in the work of examining. Some of the best friendships have been the friendships with brother examiners. Do not think it is an arid way of connection. And do not think I claim anything with regard to the university examining of training colleges except in the way of duty and of help to the training colleges. The university clings in itself, and in its own borders and in regard to its own students, to the internal system of examination, that is to say, it desires that teachers of students should have a considerable, a very considerable, say in the conduct of the examination of their pupils. That is a fundamental principle in this University of London in regard to its whole internal side. The duty that I think a university has is the duty of extending its own principle of internal examination by teachers to training colleges and to the teachers of training colleges. This would not be substituting itself for the Board of Education or adding itself to the Board of Education as a new and added factor ; it would be simply a way of securing the freedom of the teacher to have a share in the examination of his pupil ; and it would be, as it were, a saying to the training colleges : " Adopt our principle of freedom and extend it to your teachers." What I suggest is that in a group of training colleges included in a joint committee you should have a group examination for two-year students with the university teachers examining along with training college teachers both in professional and academic subjects, and with representatives of the Board of Education acting, as would bound to be the case, as assessors. I should have no objection to training college teachers being in a majority on the board of examiners. If this were done, the sort of informal joint consultative committee I have sketched would have to be made into a formal organisation recognised by the Board of Education, so that the Board might accept the examination conducted under the auspices of such a joint committee and might recognise it as issuing in a certificate or the equivalent of a certificate. I do not know that there is any need for a university to claim that any training college admitted to the examination should have a representative of the university on its governing body. If you wanted it, I think the university would send one, but I think it would be a pity to insist on that.

On the sort of scheme I have been trying to put before you, I should say two results would follow. One would be a broadening of the scope of training colleges. Training colleges on this scheme would be dealing with two-year students, four-year students, and if they kept them, third-year students—but I hope most of the third-year students would go forward to the universities—and they would be preparing teachers not merely for public elementary schools, but as secondary teachers of junior departments in secondary schools and as music teachers and teachers of other special subjects. Then there is the second main thing ; there would be a contact with the university. I would say quite definitely and clearly that I believe you are entitled to such contact with the universities as equal partners. I have nothing but high respect for training colleges. Some of the best members of the staff of King's College came from training colleges. I recognise, I say, that they are equal partners ; and it is an equal partner-

ship that I want to see. I think we should both gain. I won't say particularly on what sides we in the universities should gain. We might be made, perhaps, a little more human than we are; but I think you would gain in freedom in regard to the conduct of examinations.

I have heard it suggested that a university might conceivably be useful in the future in connection with the financial details of the working of training colleges and the giving of grants, but that is too futuristic for me to say a word about it. I desire a connection of the mind, untroubled as far as may be by administrative structures and rules: a connection between two cognate institutions simply because they are cognate. I emphasize the word "cognate," for I do not wish to see introduced any principle of rule and subordination, or to turn training colleges into inferior units within the structure of universities. I desire a mental co-operation between bodies different indeed in dimensions and scope, but none the less, because they are engaged in a common task, sympathetic and closely connected with one another. For they are engaged in the common task of spreading light, and of training men and women to spread in their turn the light which they have received.

# A Statistical Analysis of Some School Marks.

## I. THE CORRELATION WITH AGE OF ARITHMETIC CLASS MARKS.

By FRANK SANDON.

In an article published in THE FORUM last February under the heading "The Scaling and Totalling of School Marks," a method was given of standardizing marks by equating the quartiles to some definite values. It may perhaps be emphasized here that the actual maximum obtained or obtainable is irrelevant: in standardizing marks we are concerned with the class as a whole and not with particular individuals, and for the different classes as a whole the method given makes the typical individual and the scatter (the variation of the class as a whole from the type) practically the same. A teacher or examiner always automatically and half consciously adjusts the standard expected, of the new work to be done, of the test to be given, of the marks to be obtained, etc., so that the best boy of the particular class, if he does well, will just succeed in reaching the maximum. If there were an exceptionally brilliant boy in the class the standard or the maximum adopted in practice would alter. The method given compensates for this and allows us to consider the class as a whole.

It might appear that the method is based on the assumption of a normal distribution, but in point of fact, although this was perhaps implied in the article for purposes of illustration, yet the assumption really is that the frequency distributions are all similar, that is, that the Pearson functions  $\beta_1$  and  $\beta_2$  are the same in all cases. So long as this is true, the validity of scaling by two definite points, which need not be quartiles, on the curves will hold: the scaling makes the first two Pearson moment coefficients the same.

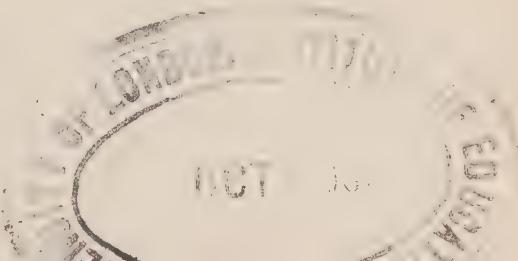
In the investigation given below, the data employed was obtained in the following way. The marks were the term totals of those given in the two arithmetic lessons (one hour each) per week to the two dozen or so boys of the top mathematical set of the lower school of a public school. The work was organized on a terminal basis and promotions were made each term. Entrance to the school was by means, *inter alia*, of an arithmetic paper and an optional mathematics paper. The result of the organization was that the weaker tail of the socially eligible population could not get admittance, and of those who did the feeblest gradually worked up the school and found the passage from lower school to upper school an efficiency bar. In consequence, the age distribution of the set in question was from 12.5 to 16.7 and was therefore much wider than that of the corresponding form of a secondary school. The term's work was chiefly in "contracted methods," percentages, and so forth, and boys who were in the set for more than one term did the same work over again. The same master was in charge throughout. Each term's total mark was standardized in the manner already given. The frequency in most cases was only 25, so that it was not worth while calculating the frequency

distribution constants : the ogive curves were drawn and suggested that the distributions were not quite similar to one another : those of corresponding terms in the two years were roughly similar. This disparity probably arises, in part, from the fact that different numbers of promotions took place at the beginning of each term, so that there were different proportions of duller boys repeating the work and younger brighter boys beginning it. As, however, all the distributions are of the same general cocked-hat type (though of different degrees of skewness), with a mode somewhere between the extremes of the marks concerned, it was felt that for a first approximation they might be assumed to be similar. The six distributions were therefore combined and the constants calculated from the population of 149 thus obtained. The result is that  $\beta_1=.40$  and  $\beta_2=3.5$ , a distribution roughly normal ( $\beta_1=0$ ,  $\beta_2=3$ ). The difference can be considered, using the method of Biometrika, Vol. X, pp. 208-214, as being due to the curtailment from the normal curve of a small proportion of the total population from the lower end, these representing subnormal individuals who could not pass the entrance examination, etc. We are justified in taking the distribution, to a first approximation, as being Gaussian for the purpose of further investigation into this set of arithmetic class marks. It may be noted that the S.D. of the distribution comes out as 18.66 marks, giving a P.E. of 12.6 marks. The semi-inter-quartile range was taken, for the standardizing work, as 10 : the difference between this and the P.E. obtained is probably due, in part, to the slight miscalculation<sup>1</sup> of the quartiles referred to in the last paper and in part to the fact that the distribution is slightly skew ( $\beta_1 \neq 0$ ).

In two recent official pamphlets ("The Relation between Home Conditions and the Intelligence of School Children": L. Isserlis, M.A., D.Sc., 1923; "Mental and Scholastic Tests among Retarded Children":<sup>2</sup> Hugh Gordon, H.M.I., 1923) both authors find in some cases a negative correlation between intelligence and age in any particular class. Thus Dr. Isserlis, who is a statistician of repute, obtains the results given in Table II.

<sup>1</sup> It may be noted that in the case of the fourth term there was no mark between 67 and 57, and the determination of the quartile, which comes between these, as 60 is somewhat arbitrary.

<sup>2</sup> This is a model of all that a statistical treatment should not be. Mr. Gordon uses the Spearman Rank formula (appropriate only of normal distribution) where the whole argument is that the distribution is not purely normal but extensively curtailed : he never gives the raw material in his tables from which his calculations are performed : one calculation that can be checked indirectly seems wrong : he cannot see that a negative partial correlation between some sort of intelligence (he uses educational and mental ratios) and some measure of school attendance for constant scholastic ability (p. 72) means that a dull child who goes regularly to school reaches the same scholastic standard as a brighter one who does not : he deals with correlation between indices and apparently has never heard of spurious correlation, for he works out a relation between a ratio (mental or educational ratio) and its denominator (age) which will of course give a negative result, even if the correlation between the two ages (chronological and mental or education) is as high as, say, .6 (*vide, e.g.,* Yule: "Theory of Statistics," Chapter XI, §9).



Dr. Isserlis says that he expected the test marks and age should be highly correlated. We note that there seems to be a tendency that the correlation for the school as a whole is fairly high<sup>1</sup> but that for each class separately the correlation is much less. This suggests an explanation of the phenomenon. The school organization is such that in theory at the beginning of a term the administration has tried to put in any one class all the children of the school who are then of equal ability. The younger will therefore have the higher mental ratio and develop more in the next three months or so<sup>2</sup> of the term than will the others, so that when the marks come to be compiled at the end of the term these younger children will be found the higher.

A cursory examination of the marks that the writer had available confirmed this idea. Thus Table III gives rise to a correlation between marks and age of  $-.20$ . The precise relation between the age and the ability seemed worthy of further investigation, particularly as the writer had often required to obtain an easy yet accurate way of granting an age allowance. It seems clear that as a boy gets older he gets cleverer, and in particular will increase in ability to do the kind of arithmetic under discussion. After some consideration it was decided to adopt the following method. As only a small number of the boys remained in the form for more than one term it was impossible to trace statistically their development from one term to the next, the total frequency involved being small, of the order of, say, 40 or 50, so that the P.E.'s would be large. It was, however, possible in four of the six terms to get the marks at half-term as well as at the end of the term. These were scaled and recorded on the same individual cards as the marks already got, and fresh tables were thus compiled. These are given at the end of the paper. From these the various correlation coefficients were calculated: time prevented an examination of the homoscedasticity of the distributions or a close examination of the linearity of the regressions, but the tables appear not to show any anomaly in either of these respects. The following results were obtained:—

$$r_{wh} = .82, \quad r_{ah}^* = -.16, \quad r_{aw}^* = -.24$$

$$\rho_{wh.a} = .82, \quad \rho_{ah.w} = .05, \quad \rho_{aw.h} = -.20$$

where  $a$ =age,  $w$ =whole term's scaled mark, and  $h$ =half term's scaled mark.

The regression equations are:—

(Age in months)  $= .10$  (half term's marks)  $- .19$  (whole term's marks)  $+ 177$ .  
 (Half term's mks)  $= .03$  (age in months)  $+ .43$  (whole term's mks)  $- .3$ .  
 (Whole term's mks)  $= -.20$  (age in months)  $+ 1.61$  (half term's mks)  $+ 43.5$ .  
 Thus there is a total correlation coefficient of marks on age of order  $-.2$  (as before), but when we consider partial correlation coefficients for

<sup>1</sup> Using the only two tables given by Gordon that are of any real statistical value, Tables XIII and XXII, we get correlations between mental age and chronological age as follows:—76 Canal Boat Children  $.6226 \pm .0474$ , 82 Gipsy Children  $.736 \pm .034$ .

<sup>2</sup> This effect will be more pronounced the younger the class: this is confirmed by Isserlis' results.

\* The P.E. in both these cases is of order  $.1$ , so that to establish sound conclusions from such small  $r$ 's a much larger number of individuals than 96 should be taken.

constant final marks there is a small positive correlation, though for constant half term marks there remains a negative correlation of the order .2. These bear out the suggestions submitted above: *of two boys who are equal half way through the term the younger progresses more rapidly and gets the higher total at the end of the term; of the boys who are level at the end of the term the younger ones have come on more rapidly and were lower half way through the term.* If we plot the average marks obtained for half term and whole term by boys of different ages we find that the regression is roughly linear and that in terms of working units the younger boys are more markedly the better at the end of the term than half way through that term. The graph attached shows this: it is a graphical expression of the total correlation coefficients. These coefficients are, as we have seen, -.24 and -.16 and give, in terms of the S.D.'s as units, the slopes of the lines. If we could assume that the extra standardized marks are obtainable equally easily anywhere along the scale, and if we regard the marks as a statical measure of ability of the kind considered instead of as a dynamical one (an integral over the whole time covered by the period for which marks were allotted) then we get the indication that, as the whole term's marks take us to a time some five weeks later than the half, that two months or so earlier there would be no correlation between marks and age. This would of course vary from school to school owing to different methods of organization and in particular of promoting, and cannot be taken to be true of any case other than the one considered.

It was hoped that some light would be thrown on the problem of the proper age allowance, but consideration will show that it cannot come from a method of correlation such as the one given. The assumption here on which we scale marks is that the distribution is roughly normal: the boy who is older and progresses more slowly will thus find that his mark is gradually falling if it were one above the average at the beginning. All boys, however, progress to some extent, and on the same basis of measurement of intelligence and ability as the first half term the next half would show for everyone an improvement. This cannot be allowed for by the method of scaling, nor by consideration of the graphs just referred, nor of course by the ordinary method of unscaled marks. The correlation between age and intelligence is a relation between the ages of a particular class and marks at a particular time, and not the relation between ages of a particular boy and his marks at different times and ages. The correlation will only give the age allowance if there is no selection whatever involved in the population considered. As we cannot get the age allowance we cannot get the arithmetic mental age nor the arithmetic mental ratio.

#### SUMMARY AND CONCLUSIONS.

- (1) We can scale marks, in the cases considered, by equating quartiles to standard values, as the distributions are roughly normal.
- (2) The results of Isserlis and Gordon are confirmed in that there is a negative correlation between age and intelligence in particular groups of children.

## A STATISTICAL ANALYSIS OF SOME SCHOOL MARKS

(3) It is submitted that the correct interpretation of this is that the class considered is one selected, in part anyway, of a basis of ability and is paralleled in a school by the school organization putting brighter younger children in the same form as duller older children at the beginning of the term. The younger then develop more rapidly and outstrip the older.

(4) In a school organization such as that described the correlation of final marks with age for constant half term marks is of the order  $-2$ .

(5) The younger boys therefore of the class "come on" more rapidly than the older, confirming the general idea of a mental ratio.

(6) Of two boys who are equal half way through the term the younger progresses more rapidly and gets the higher total at the end of the term : of the boys who are level at the end of the term the younger ones have "come on" more rapidly and were lower half way through the term.

(7) The correlation method given does not yield any satisfactory way of making age allowances.

(8) All school statistics, reports, etc., should always give the age of the individual and of the class as a whole.

(9) Further work is necessary on more extensive statistics.

TABLE I.

*Frequency Distribution of Arithmetic Class Work Marks for Each of Six Terms, each term Standardized with Quartiles equal to 40 and 60.*

Term.	8—	20—	32—	44—	56—	68—	80—	92—	104—	Total.	Number Repeating Syllabus.
I	0	2	7	6	6	3	1	0	0	25	5
II	0	3	4	9	6	1	1	1	0	25	17
III*	0	1	10	2	10	2	0	0	0	25	12
IV	0	3	8	5	3	2	2	1	0	24	5
V	3	1	4	8	4	2	1	1	1	25	13
VI*	0	4	5	8	2	3	2	0	1	25	17
Total	3	14	38	38	31	13	7	3	2	149	—

\*No half-term marks available.

A STATISTICAL ANALYSIS OF SOME SCHOOL MARKS

TABLE II.

*Correlation between Age and Intelligence (Isserlis, pp. 13 and 14).*

Class.	No. in Class.	Correlation between Age and	
		Teacher's Estimate of Intelligence.	Marks obtained in Intelligence Test.
Girls, 1 and 2	63	$+.2027 \pm .0815$	$+.3364 \pm .0754$
,, 4	48	$-.2382 \pm .0918$	$+.3099 \pm .0880$
,, 6*	50	$-.4606 \pm .0752$	$+.2817 \pm .0878$
,, 1, 2, 4 and 6	161	$+.1296 \pm .0522$	$+.5045 \pm .0395$
,, Whole School	372	$+.2152 \pm .0334$	—
Boys, Whole School	247	$+.1597 \pm .0418$	—
,, 4, 5, 7 and Special	149	$+.0334 \pm .0552$	—
,, 4, 5 and 7	106	$+.1816 \pm .0634$	$+.6394 \pm .0387$

\*Lowest and Youngest Class.

TABLE III.

*Double-Entry Table for Marks and Age.*

Arithmetic Class Work Mark.		Age, at end of Term, in years and months (completed).							Totals.
		12.4—	13.0—	13.8—	14.4—	15.0—	15.8—	16.4—	
8—	0	0	1	0	1	1	0	0	3
20—	0	4	0	5	3	2	0	14	
32—	3	3	12	13	5	2	0	38	
44—	2	11	10	10	2	2	1	38	
56—	5	7	8	7	2	2	0	31	
68—	1	4	4	3	0	1	0	13	
80—	2	1	1	2	1	0	0	7	
92—	1	0	1	0	0	1	0	3	
104—	0	0	1	1	0	0	0	2	
Totals		14	30	38	41	14	11	1	149

## A STATISTICAL ANALYSIS OF SOME SCHOOL MARKS

TABLE IV.

Tables for Age, Whole Term Marks and Half Term Marks.

Whole Term Marks (Scaled to 40 and 60).

Age at end of Term.											Totals	Mean of array, in working units, from 50
	8-	20-	32-	44-	56-	68-	80-	92-	104-			
12.4-	0	0	1	2	5	1	1	1	0	11	1.18	
13.0-	0	2	2	8	4	2	0	0	0	18	.11	
13.8-	1	0	10	8	5	2	1	1	1	29	.28	
14.4-	0	4	7	7	2	2	2	0	0	24	-.13	
15.0-	1	2	1	1	2	0	0	0	0	7	-.86	
15.8-	1	1	2	0	2	0	0	1	0	7	-.14	
Totals	3	9	23	26	20	7	4	3	1	96	.14	

Half Term Marks (Scaled to 20 and 30).

Age at end of Term.													Totals	Mean of array, in working units, from 25
	-2-	4-	10-	16-	22-	28-	34-	40-	46-	52-	58-			
12.4-	0	0	0	2	2	4	2	1	0	0	0	11	.82	
13.0-	0	0	0	8	3	5	1	0	1	0	0	18	.16	
13.8-	0	0	1	8	10	7	0	0	2	0	1	29	.38	
14.4-	0	0	4	7	5	4	2	1	1	0	0	24	0	
15.0-	1	0	2	0	3	1	0	0	0	0	0	7	-1.00	
15.8-	0	0	0	4	1	1	0	0	0	1	0	7	.29	
Totals	1	0	7	29	24	22	5	2	4	1	1	96	.19	

A STATISTICAL ANALYSIS OF SOME SCHOOL MARKS

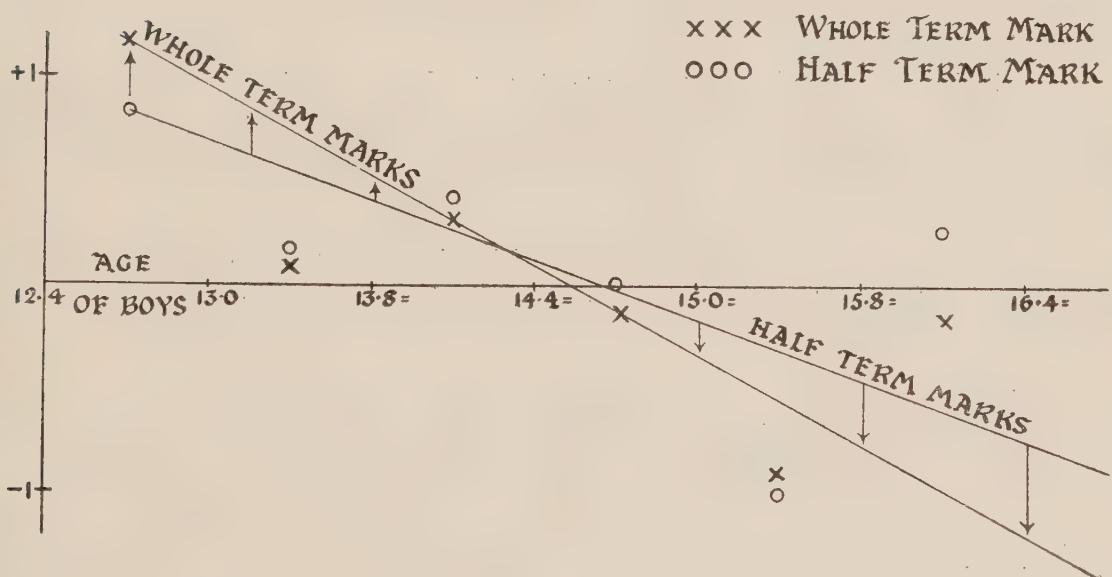
Half Term Marks (Scaled to 20 and 30).

	-2-	4-	10-	16-	22-	28-	34-	40-	46-	52-	58-	Totals.
Whole Term Marks (Scaled to 40 and 60).	8-	1	0	1	1	0	0	0	0	0	0	3
	20-	0	0	5	4	0	0	0	0	0	0	9
	32-	0	0	1	16	5	1	0	0	0	0	23
	44-	0	0	0	6	14	4	1	0	1	0	26
	56-	0	0	0	2	5	11	1	0	1	0	20
	68-	0	0	0	0	0	5	1	1	0	0	7
	80-	0	0	0	0	0	1	2	0	1	0	4
	92-	0	0	0	0	0	0	0	1	1	1	3
	104-	0	0	0	0	0	0	0	0	0	1	1
Totals		1	0	7	29	24	22	5	2	4	1	96

TABLE V.

GRAPH.

Showing Change in Whole Term Marks and in Half Term Marks for Boys of different ages in the set considered.



Variation, in Working Units, from Mean of Whole, of Average Mark (Scaled) of Age Groups.

xxx Whole Term Mark. ooo Half Term Mark.

## Intelligence Tests in Scholarship Examinations.

By W. J. STAINER.

ONE of the recommendations of the Consultative Committee on Psychological Tests of Educable Capacity (1924) is that the value of intelligence tests in selecting younger children for free places, for entrance to secondary schools, and for admission to central schools, should be investigated by tentatively adding group tests to the customary written examinations, and that the relative merits of the two sections of the examination should be estimated by calculating the correlation between the separate results.

The opinion is further expressed that the results obtained by the use of these tests should be regarded as merely "indicative," that is, as affording a presumption of the presence or absence of native ability, and that a free place or a scholarship should not be awarded to a candidate unless, in addition to his giving evidence of good hereditary equipment, he passes satisfactorily in the papers in English and arithmetic, or in a fairly searching oral examination designed to discover whether the apparent ability revealed by the group tests was really present.

For many years the award of scholarships and free places by the Brighton Local Education Authority has been determined by an examination in two parts.

Part I was an examination in English and arithmetic held in the primary schools.

The papers, set by a chief examiner from outside the town, were examined and assessed by a body of assistant examiners selected from among the staffs of higher schools, and acting in conjunction with, and under the direction of, the chief examiner.

All pupils in the schools, of the appropriate age and standard, were examined, and all who did sufficiently well proceeded to the second part of the examination.

Part II consisted of examinations in mental arithmetic, "silent reading," drawing, and practical measurements, with a *vivâ voce* examination conducted by members of the Scholarship Selection Committee.

The awards were finally made on the total number of marks obtained in the two parts, taken together.

Some three years ago a paper of "Intelligence Tests" was experimentally used, and in 1923 all candidates who reached Part II of the examination were submitted to an intelligence test from which definite intelligence quotients were obtained, the results of which were found extremely valuable, especially in dealing with border-line cases.

In 1924 a considerable advance was made, and I.Q.'s were obtained for all pupils in the schools of the appropriate age and school standard.

Selections for Part II of the examination were made on a consideration of the marks gained in the scholastic test, and of the intelligence quotients. Among the boys, for example, all were admitted whose I.Q.'s were not less than 120, regardless of their performances in Part I, and all who had obtained upwards of 60 per cent. of marks in Part I, without regard to I.Q.'s (slightly different figures were taken for girls).

In this way it was felt that a chance would be given not only to the child of good native ability who may have been taught only moderately well, but also to the child whose hereditary outfit was not of the highest order, but who had been well drilled in his scholastic work.

The Northumberland Mental Tests, No. 1, were used.

To eliminate, as far as possible, a personal variable from the results, the whole of the candidates were collected in one school, in groups which arrived at intervals of half an hour.

All the groups were started off, with an identical explanation, by one person, who then passed on, leaving in each room a supervisor, whose only duty was to stop the work at a given minute.

The marking was done by certain members of the staff of the secondary school, each one taking, not a complete test, but certain questions throughout.

With a view to a further improvement in the procedure for 1925, a careful comparison has been made of the marks awarded in the Scholarship Examination (Part I) with the intelligence quotients of the candidates.

The marks allotted by the chief examiner and his colleagues in Part I of the examination (in English and arithmetic)—alluded to later as “The Scholastic Test”—have been analysed in percentages, first in schools, then as a whole. All who received not more than 20 per cent. of the maxima marks were placed in one group (A) and the remainder were classified into percentage groups (B to H), each representing an advance of ten on its predecessor.

In a similar manner, the candidates were classified in categories according to their I.Q.'s. Those having an I.Q. of 80 and under were placed in category A, those from 81 to 90 in category B, those from 91 to 100 in category C. Those having I.Q.'s from 101 to 150 and over were placed in categories (D to M) in which the I.Q.'s advanced by fives.

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(a) The first problem attempted was that of finding the I.Q. below which no candidate could be considered worthy of a scholarship. This may be spoken of as “The Critical Intelligence Quotient.”

INTELLIGENCE TESTS IN SCHOLARSHIP EXAMINATIONS

The following table gives a complete analysis regarding all candidates (639 in number) who took both the intelligence and the scholastic tests.

Scholastic indexes calcula- tions on p. 36.	Intelligence Quotients.	Percentages of marks in Scholastic Test.										Per- cent- age.
		under 20	20— 29	30— 39	40— 49	50— 59	60— 69	70— 79	80— 89			
		A	B	C	D	E	F	G	H	Totals.		
13.75	80 and under. A	3	1								4	.6
17.7	81—90 B	16	10	3							29	4.5
20.1	91—100 C	49	35	17	3						104	16.3
26.0	101—105 D	22	30	15	5	4	1				77	12.1
27.7	106—110 E	21	34	22	13	3					93	14.5
33.5	111—115 F	4	29	34	13	5	1				86	13.5
36.4	116—120 G	6	16	15	13	11				1	62	9.7
42.6	121—125 H	2	5	11	13	5	5	1			42	6.6
43.3	126—130 I		8	9	16	10	2	1			46	7.2
49.7	131—135 J		1	8	8	14	2	3			36	5.6
50.4	136—140 K		2	3	7	6	4	2			24	3.8
55.8	141—145 L		1		2	6	2	2			13	2.0
62.8	146 and upwards M		1		3	7	3	6	3		23	3.6
	TOTALS ....	123	173	137	96	71	20	15	4	639	100.0	

It is worthy of note that Dr. Burt (*Journal of Education*, Nov., 1923, p. 728) makes the following classification :—

I.Q.'s.	Educational Category.	No. of Children, in percentages.
I over 150	Scholarships (University Hons.) ....	0.2
II 130—150	Ditto, Secondary .... ....	2.5
III 115—130	Central or Higher Elementary .... ....	13.0
IV 100—115	Ordinary Elementary .... ....	35.0
V 85—100	„ „ .... ....	35.0
VI 70—85	Dull and Backward Classes .... ....	13.0
VII 50—70	Special Schools for Mentally Defective	1.5
VIII under 50	Occupation centres for the ineducable	0.2

It should at this point be noted that the pupils whose I.Q.'s were obtained were those of  $10\frac{1}{2}$  to  $11\frac{1}{2}$  years of age, who had, on an appointed day, attained to a school standard not lower than the fourth.

The statistics quoted, therefore, refer to a selected group of the upper portion of all the pupils of the stated age, which entirely accounts for the fact that the figures given in the table resemble only the upper portion of those quoted by Dr. Burt.

The table on page 36 seems to indicate a Critical Intelligence Quotient of about 110.

This was tested "from the other end," that is to say, assuming that the scholarships had been awarded to the proper persons, by finding the lowest intelligence quotients among successful candidates.

It was found that in only two cases (those of one boy and one girl) had scholarships been awarded to pupils whose intelligence quotients were as low as 105, and that if 110 had been taken as the critical I.Q., four candidates (two boys and two girls) would have been excluded from Part I of the examination.

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(b) The second problem attempted was that of ascertaining the degree of co-ordination which exists between the measured I.Q.'s and the results of the Scholastic Test.

For this purpose the marks awarded were subjected to a further scrutiny in order to obtain, if possible, a Scholastic Index for candidates within each category of I.Q.'s, that is to say, a figure which should give due weight to the marks awarded to each candidate within the group.

To this end the marks were examined, as though the problem were to find the specific gravity of a mixture of various quantities, of various specific gravities,—or to find the centre of a set of parallel forces.

Let the number of pupils in any group be  $n$ , and the average number of marks awarded in the group  $m$ .

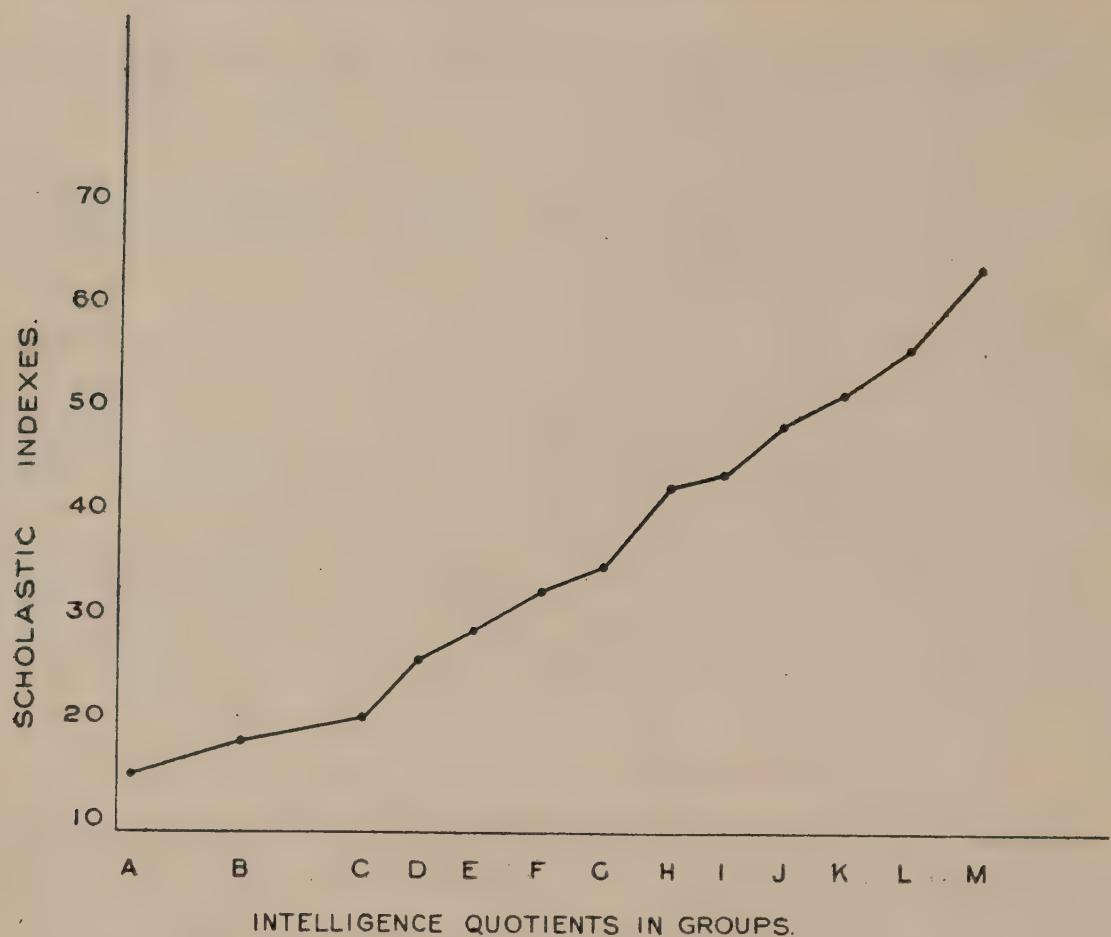
Then the Scholastic Index of any category of pupils would be :

$$\frac{\Sigma nm}{\Sigma n}$$

For example in category F the "Scholastic Index" 33.5 is obtained thus :

$$\begin{aligned} & \frac{4 \times 10 + 29 \times 25 + 34 \times 35 + 13 \times 45 + 5 \times 55 + 1 \times 65}{86} \\ &= \frac{2880}{86} \\ &= 33.5. \end{aligned}$$

When these Scholastic Indexes are plotted against I.Q.'s the graph appears as below, which, except perhaps for the small number of sub-normal or super-normal pupils, shows that the relative I.Q.'s are fairly reflected in the Scholastic Indexes.



It is, of course, probable that with a great increase in the number of pupils whose performances are considered, there would be much less deviation from a smooth line or curve than is at present the case.

Whether the regression graph would prove to be a limited portion of a curve, approaching the base asymptotically, thus suggesting that progress in scholastic attainments is governed by the usual laws of growth, or whether, apart from abnormal cases at the ends of the scales, it would ultimately become a straight line, thus indicating a direct proportional increase in performance with increase in intelligence, does not appear to be ascertainable within the limits of the information obtained from the tests under consideration.

The question might, however, be further considered thus :

The intelligence quotients are measurements of a certain quantity. The scholastic indexes are measurements of the same quantity, with something added, namely, what the pupils have been taught.

Each sets out to measure intelligence, the one stripped, so far as may be, of knowledge, the other containing some definite quantities of knowledge.

In so far as they measure the same quantity, and assuming the rigidity of the scales along which they are measured, the regression graph should be straight, but in so far as the scholastic indexes measure something additional to that measured by the intelligence quotients, departure from some straight line would measure the amount of this additional "something."

The coefficient of correlation between the two sets of *numbers* which appear in columns I and II of Table I has been calculated, in the usual way, by the Pearson-Bravais formula :—

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}}$$

$$=.99.$$

Even if allowance is made for the fact that the candidates were members of a selected group, with a "standard" qualification within the age-group, this would seem to indicate a remarkably small "scatter."

It must, however, be remembered that in each group and category, the numbers have already been "condensed" around their means, from which it seems to follow that the coefficient of correlation between the *quantities* "Scholastic Attainments" and "Intelligence" is not as great as that obtained above, which indicates the correlation between the *numbers* which have been used to represent the *quantities* taken in groups.

(c) In the process of compiling the statistics quoted in Table I a similar analysis was obtained for each individual school from which candidates offered for the examination.

It is not thought necessary to furnish the statistics here, since inferences drawn from them do not seem germane to the purpose for which the enquiry was made.

It was clear, however, that marked variations existed as between school and school with regard to the average intelligence quotients of the candidates taken in the schools, which, in the absence of racial variations, could only be attributed to inequalities of environment, at home or at school. These might include, perhaps, inequalities in the success of the methods of teaching, in the direction of developing the intelligence of the pupils to the highest point consistent with their individual inherited equipment.

Side by side with this, it was noticeable that, in schools in which the intelligence quotients were, as a rule, low, not only were the average scholastic indexes sympathetically low, but pupils with high intelligence quotients, did not, as a rule, show, in the scholastic tests, a performance markedly better than those whose intelligence appeared inferior.

This suggests that the pace is set by the duller pupils, and would furnish strong argument for the early separation and classification, not only of pupils who are considered worthy, both on account of innate ability and of attainments, of secondary education, but also of pupils who are outstanding among those left behind.

### Conclusion.

The statistics upon which this article is based appear to warrant the conclusion that a preliminary selection of pupils to be presented for further examination with a view to scholarships can readily, and with a considerable degree of certainty, be made by the employment of

standardised group intelligence tests, and that the use of a suitable Critical Intelligence Quotient below which, as a rule, no candidate may be presented for further examination, will enable examiners to concentrate attention upon the more suitable candidates.

The statistics quoted in the table indicate that if 105 be selected as the "Critical Intelligence Quotient," about one-third of the candidates could safely have been excluded from the scholarship examination, and that if 110 were taken, the number excluded would have been almost exactly one-half of the whole number of candidates.

The statistics further reveal the fact that if, in the absence of intelligence quotients, the preliminary examination consisted entirely of scholastic tests, and that so low a mark as 40 per cent. were accepted as a "qualifying" performance, no less than 433 of the candidates would have been rejected. Yet 98 of these have intelligence quotients of 115 and upwards, including 16 of 130 and upwards, and in all these cases there can be no doubt whatever, other things being equal, of their being capable of profiting by higher education.

Having regard to the fact that standardised group intelligence tests provide an almost rigid measuring rod which can be rapidly and accurately used by suitable persons, it would seem that, unless some other purpose than the choice of scholars is to be served by the examination, by scholastic tests, of the whole of the candidates, the selection can best be furthered by the preliminary rejection, by the use of group intelligence tests, of all obviously unfit candidates.

If the procedure recommended in this article were largely adopted it would become necessary to consider the provision in successive years of suitable new tests, and the author has already elsewhere made suggestions and proposals for the annual compilation of parallel sets, or of sets of equal difficulty.

Even if actual equality could not be attained, inferences from the use of the tests would still be valid, as between candidates of the same year.

It is probable, however, that little difficulty would be encountered in obtaining an approximate equality as between the different sets of similar tests, in which case inferences with regard to the relative values of candidates in different years would still be valid.

Having regard to the considerations discussed in this article, the Scholarship Selection Committee have resolved that in 1925 pupils whose intelligence quotients are less than 105 shall not be presented for the scholarship examination, which consists of a first part including tests in English and Arithmetic, and a second part, including examinations in Mental Arithmetic, "Silent Reading," and Practical Measurements, with a *vivâ voce* examination. Awards of scholarships are made upon the total marks gained in these two parts. The proviso is inserted, to avoid the possibility of the exclusion of any child whose performance is better than that expected from his intelligence quotients, that the Head of any school shall have the right to present any pupil in his school, of the appropriate age and standard, without regard to intelligence quotients.

It is probable that with the safeguard mentioned a higher critical intelligence quotient might, with advantage, have been selected.

After this article was written, the author had the advantage of perusing a paper on "School Training and Intelligence Tests" \* in which it is clearly demonstrated that, in some, at least, of the tests which are usually included in group tests, the effect of direct and deliberate "coaching" in the tests can easily be measured.

This is not to say that intelligence has increased, but that as might indeed have been expected, the quotients, as measured by the tests, are higher.

In the selection of scholars by the method proposed in this article, this would, of course, have the effect of including, among the pupils presented for the scholarship examination, more candidates from schools in which "coaching" has occurred than would otherwise have been the case.

Since, however, the final award is to be made upon the results of Parts I and II of the scholarship examination, without regard to intelligence quotients, the actual selection of scholars would not be affected by "coaching" in the intelligence tests.

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\* *The Forum of Education.* November, 1924. pp. 172-183.

## The Adult's Motive in Education.\*

BY H. CRICHTON MILLER.

MOST of us have, as children, passed through a stage of passionate enjoyment of teaching. Some of us still experience that feeling : others of us have outgrown it. Some of us have adopted teaching, be it from desk or pulpit, as a profession, although our enthusiasm has died down ; others have drifted into non-teaching vocations but cannot resist opportunities that come our way of exercising such gift as we imagine ourselves to possess in this direction. The fact that I am here to-day is evidence that I belong to the latter class, and the appreciation which I feel for the opportunity you have given me must be measured in terms of this impulse which the life of a physician satisfies only very partially.

If we examine first of all the motives given by professional teachers for their choice of a vocation, we shall occasionally, if not frequently, be struck by their inadequacy. Some have drifted into teaching as the only obvious means of earning a livelihood ; others because of some suggestive influence—"father was a schoolmaster" or "my best friend always meant to be a teacher so I decided to become one too," and so on. I recall a bright public school boy of sixteen who was afflicted by a prodigious stammer. I asked him what he was going to be when he grew up. He said with great decision that he was going to be a schoolmaster. I was surprised by his choice of a profession in view of his disability, and asked his reason. His answer was quite definite : "L-l-long holidays, sir." Well, that was a motive, perhaps not of the highest order, but at any rate it was conscious. Furthermore, it appeared to be a reason of his own, which is worth infinitely more than a second-hand reason. The teaching profession is like every other trade and occupation : it is cumbered by the presence of many members who have found their way into it without a single personal conscious motive for their choice. It is true that some who enter upon a vocation without any personal preference find their interest in it later and ultimately make a worthy contribution to it. But in general the choice of a profession, like the choice of a mate, must be a purely personal affair if it is to be the best choice. I would go the length of saying that the hereditary vocation is always to be regarded with distrust. If I had to choose a doctor or a plumber for myself or my household, I should like to be assured that the plumber's father had not been a plumber and that the doctor's father had been anything but a doctor. In fact I should be strongly biased in favour of a plumber whose father had been a doctor, and of a doctor whose father had been a plumber. Hereditary aptitudes undoubtedly exist but not nearly so generally as is believed by sanguine parents. Indeed the parents who firmly guide the feet of their offspring into vocational paths generally end by doing a double disservice to society—they provide the

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\* An address delivered before the Association of Assistant Mistresses at the Educational Conference, London, on January 2nd, 1925.

community with, let us say, a schoolmaster whose interest in schoolmastering is not the strongest interest of his life, and they ensure for the son a vocation in which he can never realise himself to the fullest extent.

But like most of the decisions of life the conscious motives are often less important than the unconscious. It may well be that a teacher who can consciously give no very adequate reason for his choice of vocation may have perfectly good reasons of which he is not fully aware—sometimes, on the contrary, these unconscious reasons are far from good. It follows therefore that the choice of a vocation is a thing that cannot be made with any assurance unless we recognise the unconscious factors that influence our choice.

In the case of the teaching profession one of the most cogent of these motives is the longing for adult status. Human beings value every form of status. From the uniform of a boy scout to the coronet of a duke, from the apron of a freemason to the Mecca turban of the Mahometan pilgrim—anything extrinsic which appears to reinforce our personal worth is highly prized. It is prized because it gives us leverage in life. It enables us to behave *de haut en bas*. It saves us from a certain amount of competition in life. It enables us to assert ourselves with less effort. It protects us from a certain amount of criticism. And of all forms of status, that of the adult makes the most general appeal. Surely none of us has forgotten the deep emotions which we experienced when we first put up our hair or—as the case might be—applied a razor to our smooth cheeks. These emotions *were* deep, and they were deep because of their association with procedure significant of adult status. And perhaps it is not going too far to say that these signs of “being grown up” mean most to those who, from the character point of view, are least grown up. The less certain we are of our personal maturity the more do we—or did we—tend to lean upon extrinsic evidence of maturity. To the child and adolescent life is a strictly limited concern. He believes with pathetic credulity that when he has grown up the limitations of knowledge, comprehension and experience will completely vanish and that life will thereafter be surrounded by a limitless horizon. The disillusion that comes with the early years of maturity stimulates the young adult to seek every possible reinforcement of this adult status which he fears may not, after all, mean so much as he anticipated. It is a very simple confusion after all—the old ambiguity between biological maturity and spiritual maturity—and it is this that drives many young adults into a profession in which the status of parent-substitute brings with it the unchallenged standing of the adult in the outlook of their conscripted children-substitutes.

In the desire for adult status is implicit the longing for parenthood. In a savage community the two states were practically synonymous, that is to say, that a youth's first child was the outward sign of his eligibility for acceptance as a man in the tribe. Now that this standard of values no longer holds, men and women have been forced to look for other methods of emphasizing their status and the adoption of the teaching profession provides a woman with a large number of children in whom she can find an outlet for her maternal feelings. This is a matter which it is well to consider, for it is certain that the remarkable craving for being indispensable to a helpless creature, for loving someone who can give no adequate return, which is essential to the welfare of the species, is a

strong factor in bringing many women to the teaching profession. This urge is most completely sublimated in the case of teachers in kindergartens and in special schools. It is obviously not operative in the case of those who become university dons or professors of technology.

Another aspect of the desire to assume the position of parent-substitute is the feeling that this status carries with it superiority, in many cases unquestioned. A person who is by nature diffident and unsure of herself may find reassurance in dealing with children who have neither the position nor the knowledge to reinforce any criticism they may make of a teacher's personality or methods. This sense of inferiority is often combined with an exhibitionist tendency, which properly belongs to childhood. However, if it did not persist in many "grown-ups" the world would be much less amusing—we should have no stage and probably politicians would become extinct. There is no doubt that this unconscious motive plays a part in the choice of a vocation. For instance, an exhibitionist does not become a statistician; and when, as we have said, exhibitionism is combined with a sense of inferiority, a tractable and uncritical audience is obviously a necessity. Again, therefore, teaching is indicated, as the purveyor of learning to the young has one of the most unchallenged platforms that the world offers.

In discussing the desire for parenthood, we have so far dealt only with the desire to feel superiority and again to give love to a helpless recipient of affection. But there is a totally different element in the parental urge. It is the universal human longing to have a stake in the future. It is the desire to leave behind us our imprint on animate as opposed to inanimate material; something creative, subtly blent with a something possessive; an altruism which is mingled with that self-love which demands replicas of ourselves for the next generation—all this complex side of the parental urge seeks sublimation in the work of the teacher. It is analogous to the man who spends his life and his substance in afforestation. He derives his main satisfaction not from the acres of saplings that he sees in his old age but from the vision of the mighty forests that his children and his grandchildren will inherit. It is the application of creative work to living material bearing a fruit that the man himself can never hope to see. And as this labouring for the unseen future is in a sense an intrinsic element in the universal craving for immortality, so strangely compounded of altruism and egotism, only the most blatant materialist or the most visionless worldling can fail to recognise the force for social progress inherent in this craving. If there be an evolutionary process at work which is more than biological, it must depend on the progressive value of the contributions which are made by individuals in each generation. These individuals must themselves be impelled by some capacity for valuing progress. Furthermore, they must be able to value potential progress and must be willing to sow seed of which they will never reap the harvest. This I take to be the essential link between a conception of cosmic evolution and man's vision of immortality. And this I believe to be the deepest and perhaps the most precious motive which determines a teacher's vocation. Your own ideas on personal survival after death may be positive, negative or neutral, but I beg of you to examine yourselves and find out, if you can, how far you are influenced by this conception of life after death—living in the lives of

those whose youth you have influenced. No consideration, I venture to submit, offers so rich a compensation to the celibate adult in the light of approaching age.

We have not yet explored all the subconscious motives at work in a prospective teacher's mind. I said earlier that some of these might be bad and one certainly is. I refer to the power urge. It is true that this factor counts for more with school masters than with school mistresses but you must pardon me if I suggest that even with mistresses—perhaps even with assistant mistresses—the factor of power may enter in. Propagandism constitutes the most familiar outcome of a power psychology, and I am sure you will all agree with me that propagandism is one of the worst traits that a teacher can possess. The desire which dominates some people to make others think as they do may be tolerable in the politician and pardonable in the evangelist, but in the man or woman who has access to the plastic mind of the child it is indefensible. The new era in education has made it quite impossible for anyone to approach the teaching profession with a conscious power urge seeking domination over the minds of pupils, but we can eliminate this detrimental factor only by taking stock of the unconscious elements of our mental make-up. Therefore I regard the analytical outlook as a necessary corollary of all our modern theories of freedom in education. Education cannot be made free by teachers who are not free in their own minds. It is only when we can contentedly recognise in our pupils progress that leads them to other standpoints than our own that we can claim to be free from the spirit of propaganda. Indeed I believe that this constitutes the vital difference between the old education and the new. The old education was always concerned with "*inculcating*." This is a word that we are discarding, but I wish that the spirit for which it stands showed less vitality. We need to accustom ourselves to a new phraseology which shall be more challenging to ourselves. Instead of inculcating in the young ideas of duty, obedience and respectability, let us try to *infect* them with the ideals that mean most to ourselves. Inculcation is a process that only requires power and pertinacity but infection is a very different affair. You can only infect another with that which you have yourself—from chicken-pox to heroism. If we set out to teach with this ideal constantly in our minds we are liable to experience some painful surprises when we find ourselves "*inculcating*" in a way that previously we associated with some of our colleagues but never with ourselves.

And if we are to infect our pupils what are we to infect them with? It seems to me that as the child approaches life there are two great lessons that he must learn, or rather that he must be learning all the time. These two lessons have this in common, that the first can only be partially inculcated, while the second cannot be inculcated at all.

The first lesson is that *effort is worth while*. Till the time of Fröbel it seems to have been universally held that an extrinsic system of rewards and (more particularly) punishments was the only way of teaching this lesson. It is true that from all time children have been adjured to try to be good, silent or tidy "to please mother," but this emotional lever has been discounted by professional teachers, and analytical psychology has revealed to us the reason. In so far as the child's reactions are determined by an emotional bond to an adult, so far will they antagonise actual

character growth. We can often make a child put forth ample effort to please a parent, but unless he has learned for himself that effort is worth while he will sooner or later be faced with the alternative of continuing to be "mother's strenuous little boy," or of growing up a fainéant.

If I may be allowed an opinion Fröebel's great contribution to education was the idea that attentive effort produced interest which was its own reward. That was a great step in advance. Then came Dr. Montessori and other reformers who caused interest to lead to achievement, and whereas formerly achievement had been limited to extrinsic prizes or the gaining of places, now it is as far as possible made intrinsic to the study itself. The child should learn that effort is worth while for the achievement to which it leads, apart from competition (if possible), apart from adult approbation and gratification, apart from rewards and apart from penalties. Gradually the child should learn that out of years of minor achievement comes the major achievement of maturity and self-realisation. In short he has to learn that it is worth while making effort in order to grow up and that growing up is in itself worth while.

Now perhaps you understand why I said that this lesson can only partially be inculcated. If the teacher has never learned this lesson personally no amount of inculcation will compensate for the lack. The mistress who has not realised herself to the full, because she has never exerted enough effort to do so, can never infect her pupils with this great lesson, and her pupils will know the difference with that unfailing intuition which is characteristic of the child mind.

The second great lesson is that *life, in general, is trustworthy*. We adults have a wonderfully short memory for the fears of childhood, and so we tend to protect the child by constant and emphatic warnings of life's retributions. It is true that life is in a measure incalculable. Were it not so it would cease to be an adventure and the zest of life would vanish as the challenge vanished. But life in general is calculable and friendly to those who meet it with confidence. There are parents and teachers who insistently warn the young that the branch will break and the dog will bite, that the master will cane and the examiner will plough. Well, of course, all these things happen, yet in general they more often do not, and the child's confidence in life will be largely determined by the attitude of the adults around him. And if we would give the child a sense of confidence in the calculability of life we must begin by being calculable ourselves. Favouritism, injustice and variability of mood and temper work their great wrong because they destroy the child's confidence in that cosmos of which the teacher is for the moment the most conspicuous portion. As Emerson says, "That which we are, we shall teach, not voluntarily, but involuntarily. . . ." But beyond this it is our business, I would almost say our most sacred business, to infect the child with the feeling that life is trustworthy; that there are no loaded dice in the game; that the adventure is a very hopeful one; and that a "gallant and high-hearted happiness" never meets with ultimate defeat. If on the other hand we impart to our pupils a general distrust of life we are infecting them with a virus that may cripple them for all time in their encounter with life. And how can you infect them with this confidence if you do not possess it yourselves? If to you life is an unbroken menace; if to

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you the game is always a losing game ; if you think you have struggled only to meet continued defeats ; if you have never learned to

“ . . . meet with Triumph and Disaster  
And treat those two impostors just the same ”

—if in fact you are yourself unadjusted to circumstance and environment, how can you inspire your pupils to face the challenge of life with that equanimity which alone permits of full self-realisation ? To quote Emerson again “ Character teaches over our heads.”

Life—from whatever point of view we approach it—is a matter of equilibrium. Cyclone and anti-cyclone, triceps and biceps, vagus and sympathetic, vision and practice, reason and intuition—always we have the two opposing principles. The art of living is essentially the art of balancing such antagonists as perfectly as may be. And so in the two principles I have laid down you will find a natural antagonism, in the adjustment of which lies the chief art of life. The principle of effort combined with a real distrust of life leads to an anxiety neurosis. The trustworthiness of life on an effortless basis makes for futility and the Micawber attitude.

I think I am right in claiming that all the great educators of history have shown strenuousness and equanimity in unusual degree. Every child in every class that you teach needs these two principles in varying proportion. Unless you are yourselves capable of infecting them with both, some at least will pass from you lacking what you should have been able to give.

And so I say take stock of your motives ; find out where you stand ; see that you are not an out-of-date inculcating machine ; *feel* that effort is worth while and if heretofore life has not seemed to you trustworthy, I beg you from to-day to go out to meet it in a new spirit of confidence, for the children's sake as well as your own.

## Secondary Education in Prussia: a New Development.

BY M. F. LIDDELL.

IT was a Berlin professor who declared, in the course of a conversation with the writer several years before the Great War, that the English ideal of general culture in practice spells general ignorance. *Herr Geheimrat* might have formulated his verdict a little less acidly; bluntly as it was put, however, it reflected in the most admirable manner both the speaker's own considered opinion and the point of view of the men who have made the Prussian educational system what it is to-day. The cast-iron partitions between "*Fach*" and "*Fach*" at the university, the carefully drawn distinctions between *Gymnasium*, *Realgymnasium*, and *Oberrealschule*, the conscientiously enforced rule under which a middle-aged sempstress applying for permission to teach needlework at an evening institute in Berlin was obliged to pass an examination on Rousseau's "*Emile*,"<sup>1</sup> are all so many illustrations of the fervour of Imperial Germany's belief in specialisation. The general re-examination of values which has been one of the results of the débâcle of 1918 is asserted by some to have gone some way towards undermining this tradition also, at least as far as the German universities are concerned. It is all the more surprising therefore that at this very juncture the Prussian Ministry of Education should have astonished the world by declaring that specialisation has not been carried far enough. A recently published memorandum on "The Re-organization of the Prussian Secondary School System"<sup>2</sup> summarises the authorities' views on the subject and outlines a scheme by which they hope to improve the existing state of things. No definite steps have as yet been taken to put their proposals into practice; the matter, however, is being discussed with the utmost energy and the Government's bombshell (as, allowing for differences in idiom, German teachers may be said to describe it) has certainly scattered the earth in all directions. What changes does the Ministry of Education suggest and why is it dissatisfied with the present state of things?

The memorandum begins by declaring that the ideal of an all-round culture (*Allgemeinbildung*), as formulated by Schulze at a time when German thought was still dominated by the Hegelian system of philosophy, has been rendered unattainable by the enormous increase and differentiation of knowledge resulting from the growth of science and the consequent widening of man's mental and intellectual horizon in the latter half of the nineteenth century. The leading intellects of that period, it is pointed out, Lagarde, Nietzsche, and the author of "*Rembrandt als Erzieher*," have already been heard to acknowledge that it was no longer possible for one individual to grasp modern culture in its entirety and that *a fortiori* the attainment of a uniform culture (*inhaltliche Gleichheit der Bildung*) by all members of the community is absolutely out of the question. The desperate attempts of latter-day educational

<sup>1</sup> To quote a case which came under the personal observation of the writer.

<sup>2</sup> Die Neuordnung des preussischen höheren Schulwesens, Denkschrift des Preussischen Ministeriums für Wissenschaft, Kunst und Volksbildung, Berlin, Weidmannsche Buchhandlung, 1924.

reformers to do justice to every aspect of contemporary life by adding more and more "modern subjects" to the curriculum were foredoomed to failure and have resulted in a steadily decreasing depth (*Verflachung*) of the pupils' knowledge and a corresponding growth of dilettantism. It is high time therefore to call a halt and to alter our course, the more so as the modern tendency towards differentiation has been greatly intensified by the cataclysm of 1918, and post-war conditions are rendering it more and more difficult to resist the demand for vocational training. The age demands a more practical, *i.e.*, a less one-sidedly intellectual conception of education. We must in fact make up our minds definitely to adopt the principle of a division of labour (*bewusste Arbeitsteilung*).

This of course does not imply a total abandonment of anything like uniformity among schools in as far as fundamentally important subjects like physical training, civics, history, and above all the study of the mother tongue, are concerned. There is a group of "cultural subjects" (*kulturkundliche Fächer*) which must remain common to all types of secondary schools: German, history, philosophy (to which one hour a week should be devoted in every sixth form), geography, divinity (two hours a week), drawing, and music. It is these disciplines which will afford the nucleus of the new *Einheitsschule*. It is not advisable, however—the opinion of the Ministry here runs counter to that of many present-day reformers who advocate the "elasticity" so successfully put into practice by the *Domschule* at Lübeck—to suffer local authorities or individual headmasters to build an indefinite number of insufficiently related or possibly widely divergent subjects round this nucleus. On the contrary, there must be a limited number of definite types of secondary schools to one or other of which every existing institution will have to conform. These types as planned by the authorities and described in the memorandum are four in number: the *Gymnasium*, the *Realgymnasium*, the *Oberrealschule*, and the *Oberschule*.<sup>1</sup>

The *Gymnasium* is intended to continue the mission which has always been more particularly its own, namely, to maintain the connection between ancient culture and the modern world. Its pupils will still devote the greater part of their time to Latin and Greek, abandoning only their hitherto pursued aim of "a Ciceronian prose style" and endeavouring instead to attain to a real insight into the ancient world by means of a more intensive study of classical literature. Tests in Latin prose composition are no longer to form part of the Leaving Certificate examination; a frequently demanded, in fact long overdue reform. But—and this is undoubtedly the most important of the innovations proposed by the reformers—modern languages are no longer to hold even the secondary place in the curriculum of the *Gymnasium* that they have enjoyed up till now. Under the present system every *Gymnasiast*

<sup>1</sup> It will be remembered that in addition to the *Volksschulen* (elementary schools) and *Mittelschulen* (secondary schools for pupils up to the age of sixteen or seventeen) the pre-war Prussian system recognized three main types of *höhere Schulen*, *i.e.*, secondary schools for pupils up to the age of eighteen, leading straight on to the University, viz.: the *Gymnasium* (specialising in classics, but also teaching French and a certain amount of English); the *Realgymnasium* (with Latin, French, English, and science as its staple subjects); and the *Oberrealschule* (modern subjects only).

receives a thorough training in French and is allowed to add English in the upper forms, should he or his parents so desire. In future only one foreign language (French) will be taught in the upper school, and English as a substitute for Greek is not to be carried beyond the intermediate stage, a far-reaching decision which in the opinion of not a few well informed observers is likely to reduce the number of future *Gymnasien* almost to vanishing point. The old *Realgymnasium*, like the *Reformrealgymnasium* which is now to be amalgamated with it, is to continue to cultivate the study of modern foreign languages as well as of Latin, although, as the memorandum points out, it must be frankly admitted that the Latin departments of the *Realgymnasien* have not fulfilled the expectations originally based upon them. It is necessary, however, to keep the last-named subject, in order to enable junior ex-*Gymnasiasten* to take advantage of this type of institution. The *Oberrealschule* will specialise in mathematics and science (subjects which are also to be stressed more emphatically at the *Realgymnasium*), while the *Oberschule*, a new type already existing and in working order, gives special attention to German, history, and civics.

The authors of the memorandum base their scheme upon the idea that each type of institution is to assign to itself a special section of culture (*Kulturbereich*). They also advocate the introduction of several other reforms which have been frequently demanded in the past and can no longer, owing to the exigencies of modern life and especially of post-war poverty, be withheld from pupils, such as the abolition of afternoon classes, the cutting down of homework, and the setting aside of one hour per day for physical training or games. Elaborate time tables are appended by them to show how the new scheme would work out in practice; its applicability to girls' schools also is briefly sketched. To all appearances it needs but a word from the powers that be to translate their paper revolution into actual fact. Will that word be spoken?

The Ministry of Education in sponsoring the new scheme expresses a hope of receiving the support of the educational world as a whole, "inasmuch as all sections of it are united in condemning the purely intellectualist character of the training hitherto in vogue." If this is the belief of the authorities, it is to be feared that there is a disappointment in store for them. The proposals relating to the *Gymnasium* in particular are certain to provoke fierce opposition. If the curriculum of this institution is "reformed" in the sense indicated, its pupils will have practically no career open to them except the Church and the teaching profession, which latter, moreover, holds out few possibilities, as the number of *Gymnasien* has in any case been decreasing with alarming rapidity during the last few decades. The number of students attracted to it will in consequence become still smaller—divinity also being a relatively unpopular subject in post-war Germany—and the result bids fair to be disastrous as far as the future of the humanities in Germany is concerned. A German parent, himself a lover of the classics but fully alive to the importance of foreign languages and other "modern subjects" as part of a twentieth century education, has summed up the matter in a nutshell: "My son is at a *Gymnasium* at this moment," so he informed the writer, "but if the proposals contained in the Government's memorandum are carried out, I shall remove him immediately."

# An Elementary School Syllabus in Mathematics.

By T. PERCY NUNN.

(Continued.)

## STAGE IX (STANDARD VI).

### A.—*Mental Arithmetic.*

Oral exercises and test papers on previous work as before.

### B.—*General Arithmetic.*

1. Problems and exercises on preceding work, including :—

- (a) Harder examples in the multiplication and division of decimal fractions (App. I, Models V and VI).
- (b) Problems on length, surface, and capacity measures, involving the mile and the kilometre ; the acre ; the square mile and the hectare ; the pint, quart, gallon, bushel, and litre.

2. The decimalisation of money (App. III). Application in problems.

3. The expansion of a vulgar fraction in tenths, hundredths, etc. (Note that the object of this transformation is to reduce fractions with different denominators to readily comparable form.)

Problems on expansion and the converse reduction of a decimal to a vulgar fraction.

4. Proportion. Ratio.

(a) Proportion, direct and inverse, to be taught in the sequence illustrated by the following problems and models :—

(i) A motor car travels  $2\frac{1}{4}$  times as fast as a bicycle. How far will the former go while the latter goes 16 miles ?

$$(i) \text{Distance} = 16 \times 2\frac{1}{4}$$

(ii) How far will the bicycle go while the car goes 54 miles ?

$$(ii) \text{Distance} = 54 \times 4/9 \\ = 24 \text{ miles.}$$

(iii) A car travels 22 miles while a bicycle travels 13 miles. How far will the former go while the latter goes 39 miles ?

$$(iii) \text{Distance} = 39 \times 22/13 \\ = 66 \text{ miles.}$$

(iv) How far will the bicycle go while the car goes 55 miles ?

$$(iv) \text{Distance} = 55 \times 13/22 \\ = 65/2 \\ = 32\frac{1}{2} \text{ miles.}$$

(v) How long will the bicycle of (i) take to go as far as the car goes in three hours ?

$$\text{Time} = 3 \times 2\frac{1}{4} \text{ hours.} \\ = 6\frac{3}{4} \text{ hours.}$$

(vi) How long will the car in (iii) take to go as far as the bicycle goes in 1 hr. 50 min.?

$$\begin{aligned}\text{Time} &= 1 \text{ hr. } 50 \text{ min.} \times \frac{13}{22} \\ &= 110 \times \frac{13}{22} \text{ min.} \\ &= 65 \text{ min.} \\ &= 1 \text{ hr. } 5 \text{ min.}\end{aligned}$$

(b) Ratio.

Exercises and problems following up Geometry 3 (a).

C.—*Geometrical Work.*

1. Plane and curved surfaces.

(a) Difference between plane and curved surfaces. How to test whether a surface is plane. Developable (e.g., cylinder, cone) and non-developable surfaces (e.g., sphere). Ruled surfaces (e.g., cylinder, cone, hyperboloid).  
 (b) How the angle between two planes or between a line and a plane is measured. How to test whether a line is perpendicular to a plane. Vertical and horizontal lines and planes; use of plumb line and level.

2. Geometrical symmetry.

(a) Geometrical symmetry explained by reference to human hands, semi-detached villas, mirror-images, etc. Examples of symmetrical figures, solid and plane. Axes and planes of symmetry. Comparison between rectangular and non-rectangular plane and solid figures; circle, ellipse, parabola, oval; sphere, ellipsoid, ovoid, etc. Solids of revolution.  
 (b) Simple properties of circle and sphere obviously dependent upon this symmetry, including (i) bisection of parallel chordal lines (or planes) by diametric line (or plane), (ii) position of tangent line (or plane).

3. Geometrical similarity.

(a) Analysis of models and drawings representing the same outline on different scales to bring out (i) that corresponding lines in the two figures have a constant ratio (N.B.—this is to be the introduction of the term ratio); (ii) that corresponding pairs of lines contain the same angle. Plane and solid figures having these properties are called *similar*.  
 (b) Arithmetical exercises upon geometrical similarity. Circles as similar figures. Ratio of circumference to diameter

STAGE X (STANDARD VI).

A.—*Mental Arithmetic.*

Oral exercises and test papers as for Stage IX, but including exercises on the work of that stage, especially the decimalisation of money (App. III).

B.—*General Arithmetic.*

1. Further exercises on the work of Stage IX.

2. Percentages.

In teaching the use of the notions "per cent.," "per thousand," etc., it should be borne in mind that statements involving them always imply a comparison between two or more cases of the same type—e.g., between

the marks obtained by a scholar out of different totals, between the mortality of two towns with different populations, between the return from different investments, etc. In the earliest examples the comparison should be explicit ; when the idea is mastered it may be assumed.

The examples should as a rule not be financial at first, but should deal with matters of a character more easily realisable by children, such as increase and loss of height and weight, school attendance, population changes, etc.

All the forms of calculation involved in problems of the " profit and loss " type should thus be dealt with in connection with various kinds of material, the financial applications of percentages being taken among the others and not taught as distinct " rules."

In connection with the financial applications the terms " interest " (with special reference to the Savings Bank), " discount," and " commission " should be explained and used.

### 3. The use of formulæ.

The use of formulæ is to be taught as a " shorthand " method of statement of rules followed in working certain problems. No special lessons are to be given, but opportunity is to be taken of expressing in formulæ the rules in mensuration, etc., which are from time to time established. The formulæ should be used thereafter in problems on the rules. For method of teaching see Nunn, " The Teaching of Algebra," Ch. III.

## C.—Geometrical Work.

### 1. Parallels.

(a) A transversal line (or plane) cuts a series of parallel lines (or planes) at a constant angle. Equality of alternate angles.

(Note that those properties and the converse properties are to be treated as obvious.)

(b) Deduction (i) that the external angle of a triangle is equal to the sum of the internal opposite angles, and (ii) that the angle-sum of a triangle is two right angles.

(c) The figures marked out by series of intersecting parallel lines (or planes) are parallelograms (or parallelopipeds). Properties of these figures, including (i) bisection by a diagonal line (or plane), (ii) the mutual bisection of two diagonal lines (or planes) of a parallelogram (or parallelopiped), (iii) the position of the meeting point of the six diagonal planes of a parallelopiped. Construction of drawings and models of parallelograms and parallelopipeds to given dimensions.

### 2. Geometrical similarity (*continued*).

The shape of a triangle is fixed by the magnitudes of two angles. (See 1. (b) above). Equiangular triangles are similar. Determination of distances and heights (e.g., distance across a river ; height of a tree) by similar triangles. Playground exercises.

3. Geometrical constructions.

- (a) Further exercises, graphic and arithmetical, of the types mentioned in Stage VIII, C. 3.
- (b) Isosceles triangle as example of symmetry; equality of base angles. Relative positions of greater and less angles and sides of triangles.
- (c) Geometrical constructions for (i) bisecting a line or arc, (ii) drawing perpendiculars, (iii) bisecting an angle. These constructions are to be taught as examples of symmetry. Accuracy in using them is to be encouraged by exercises leading to the discovery:—
  - (i) that the medians of a triangle are concurrent;
  - (ii) that the perpendicular bisectors of the sides are concurrent;
  - (iii) that the bisector of the vertical angle divides the base into segments which have the same ratio as the sides.
- (d) Methods of enlarging and reducing drawings. Optical method. The pantograph.

4. Area.

- (a) Area of fields, etc., determined by “off-sets.” Playground exercises.
- (b) Area of circle.

5. Volume.

Calculation of volume of cylinder, given base-radius and height.

STAGE XI. (STANDARD VII)

A.—*Mental Arithmetic.*

The mental arithmetic should largely take the form of (a) practice in “long tots,” etc., (b) the mental computation of costs. In connection with (b) invoices should be written out, receipted, etc.

B.—*General Arithmetic.*

Revision of previous work and the following:—

1. Proportion.

- (a) Direct proportion. The straight line as its graphic symbol. Examples of direct proportion, treated graphically and arithmetically.
- \*(b) Inverse proportion. The rectangular hyperbola (“inverse proportion curve”) as its graphic symbol.
- \*(c) Compound proportion. (To be treated by an extension of the method of Stage IX, B. 4.)

2. Comparison between simple interest (growth with constant increment) and compound interest (growth with constant growth-factor). Use of growth-factor in simple problems concerning changes of population, amount and present value of money, etc.

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\* May be omitted.

\*3. The calculation of square root. The process to be taught in two stages :—

- (a) It is clear that the length of the side of a square whose area is (say) 20 sq. inches is between 4 in. and 5 in. Joint work by class shows that it is also (i) between 4.4 and 4.5, (ii) between 4.47 and 4.48. In this way the idea is suggested of a gradual approach towards the value by steps of which each adds another decimal place to the approximation.
- (b) The technical method of carrying out the approximation is taught by the method given in Nunn's "The Teaching of Algebra," Ch. VIII. For problems see C. 5 below.
- (c) The use of the "square root curve" (the parabola) in forming a table of square roots.

\*4. *Formulae.*

Simple lessons and exercises may be given on the formation and use of formulæ. For methods see Nunn's "The Teaching of Algebra," Chs. III and VI, and "Exercises in Algebra," Part I, Exx. I, III, IV.

C.—*Geometrical Work.*

1. The tangent-table.

- (a) Problems of heights or distances which involve similar right-angled triangles can all be solved by calculation when the solution of one of them has been determined by drawing. The formula  $a=b \tan A$ .
- (b) Construction of a table of tangents by graphic method. Applications in problems. Range-finding, etc.

2. The Cone.

- (a) Derivation of a cone from a sector of a circle. Construction of a paper cone with given dimensions.
- (b) Calculation of area of a conical surface.
- (c) Experimental verification of rule for the volume of a cone (e.g., by filling with sand). Calculations.

\*3. The ellipse.

- (a) The ellipse as the orthogonal projection ("shadow") of a circle. The elliptic trammel. The oblique sections of a cylinder are ellipses.
- (b) Deduction of simple chordal and tangent properties of the ellipse from corresponding properties of the circle. (Stage IX, C. 2 (b).)
- (c) Deduction of the rule for the area of an ellipse.

\*4. Angle properties of the circle.

- (a) The angle at the centre of a circle is double of the angle at the circumference standing on the same arc.
- (b) Deduction that angles in the same segment are equal and that the angle in a semi-circle is a right angle. Use of the last property in drawing perpendiculars.

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\*May be omitted.

5. Pythagoras's Theorem.

- (a) The Egyptian rule for setting off a right angle by means of a triangle whose sides are respectively 3, 4, and 5 units in length. Other triads of whole numbers having the same property.
- (b) Observation that the rule  $c^2 = a^2 + b^2$  applies in all such cases. Verification of the general validity of the rule. Arithmetical problems (B. 3 (b)).
- \*(c) Confirmation of the theorem by dissection of figures or by method of similar triangles.

6. Area.

Equality of areas of trapezia, parallelogams and triangles between the same parallels. (Cavaglieri's method. <sup>†</sup>) Calculations. Area of surface of cylindrical box.

7. Volume.

Equality of volumes of solids between parallel planes. (Cavaglieri's method.) Application to parallelopipeds and oblique cylinder on circular base.

\*8. Map Projections.

Necessity of map projections due to the fact that the surface of the sphere cannot be "developed" (Stage IX, C.1 (a).) Illustrations of distortion of outlines of continents, etc., in photographs of globe. The central cylindrical map projection. (For methods see articles by Nunn in *Geographical Teacher*, Summer and Winter, 1917.)

STAGE XII (STANDARD VII).

A.—*Mental Arithmetic.*

Further exercises as in Stage XI, A.

B.—*General Arithmetic.*

1. Proportion.

- (a) Further examples in simple and compound proportion.
- \*(b) Direct and inverse proportion to the square of a variable. The parabola as the graphic symbol of the former. Proportion to the cube of the variable.

\*2. Formulae.

- (a) Simple exercises on " changing the subject of a formula." The use of simple equations. (See Nunn, "The Teaching of Algebra," Ch. X.)
- (b) The use of directed numbers. (See Nunn, *op. cit.*, Ch. XVIII.)

\*3. Curve representing law of growth at compound interest (i.e., with constant growth-factors). Derivation of logarithms and their properties. Use of table of logarithms. (Nunn, "Teaching of Algebra," Chs. XXX—XXXIII.)

\*May be omitted.

<sup>†</sup>EXAMPLE. A cardboard or wooden rectangle may be built up of a number of equal narrow rectangular strips, arranged parallel to the base of the figure. If these are displaced in the direction of their length, their area is unchanged but they make a figure (approximately a parallelogram) of a new shape.

C.—*Geometrical Work.*

1. The sine and cosine.
  - (a) Use of the sine and cosine of an angle in simple navigation problems.
  - (b) Graphic construction of tables of sines and cosines. Use in simple problems, including the calculation of length of circles of latitude.
2. Areas and Volumes.
  - (a) Areas of similar figures shown to be proportional to the squares of corresponding linear dimensions (cf. Stage VI, C. 1 (a).) Calculations.
  - (b) The rule for the volume of a pyramid (Stage XI, C. 2 (c).)
  - (c) Construction of paper pyramids, right and oblique, of given dimensions.
  - (d) Experimental verification of the rule for the volume of a sphere. Deduction of rule for area of surface. Calculations.
  - (e) The volumes of similar solids are shown to be proportional to the cubes of their corresponding linear dimensions. (cf. Stage VIII, C. 2 (e).) Calculations.
- \*3. The circle and the conic sections.
  - (a) The law of constant product of the segments of intersecting chords and secants of a circle (or sphere). Practical applications and calculations.
  - (b) The ellipse as the path traced out by a point moving so that the sum of its distances from two fixed "foci" is constant. The ellipse in astronomy.
  - (c) The sections of a cone obtained by drawing.
- \*4. Map Projections.
  - (a) Sanson's "sinusoidal" projection.
  - (b) The Mercator projection.

## APPENDIX I.

*Examples of Methods of setting down Arithmetical Processes.*

Model I.  $147 \times 53$

$$\begin{array}{r}
 147 \\
 \times 53 \\
 \hline
 7350 \\
 441 \\
 \hline
 7791
 \end{array}$$

Model II.  $87$

$$\begin{array}{r}
 87 \\
 73)6372 \\
 584 \\
 \hline
 532 \\
 511 \\
 \hline
 21 \text{ rem.}
 \end{array}$$

\*May be omitted

## Model III.

			Marginal Work.		
			Either £ s. d.		
£	s.	d.			
14	12	$6\frac{1}{2} \times 23$			
		23			
336	8	$5\frac{1}{2}$			
			11		
			11	6	
			12	5	
			11	10	
			2	6	
			14	8	
			280		
			42		
			336		

Or	£	s.	d.
			11
			11
		10	0
		2	17
		6	
	14	8	5
	280		
	42		
	336		

## Model IV.

£	s.	d.
16	12	$8\frac{1}{4}$
37)615	9	$5\frac{1}{4}$
37	460	300
245	469	$305\frac{1}{4}$
222	37	296
23	99	$9\frac{1}{4}$
	74	
	25	

$$\text{Model V. (a)} \quad 3.47 \text{ m.} \times 10 \\ = 34.7 \text{ m.}$$

$$\text{(b)} \quad 3.47 \text{ m.} \times 6 \\ \underline{20.82 \text{ m.}}$$

$$\text{*(c) Either} \quad 126.34 \times 23.58 \\ \underline{23.58} \\ 2526.8 \\ 379.02 \\ 63.170 \\ 10.1072 \\ \underline{2979.0972}$$

$$\text{Or} \quad 126.34 \times 23.58 \\ \underline{23.58} \\ 2526.8 \\ 379.02 \\ 63.170 \\ 10.1072 \\ \underline{2979.0972}$$

\*For the way of working and setting down if the "standard form" method is adopted, see Appendix II.

$$\text{Model VI.} \quad (a) \quad \begin{array}{r} 25.8\text{m.} \div 10 \\ = 2.58\text{m.} \end{array} \quad (b) \quad \begin{array}{r} 3) 25.8\text{m.} \\ \hline 8.6\text{m.} \end{array}$$

$$(c) \quad 28.37 \div 11.3 = 283.7 \div 113 = 2.51$$

$$\begin{array}{r} 2.510 \\ 113 \overline{)283.700} \\ 226 \\ \hline 57.7 \\ 56.5 \\ \hline 1.20 \\ 1.13 \\ \hline 0.070 \end{array}$$

$$\begin{aligned}
 \text{Model VII.} \quad & \frac{2}{15} + \frac{11}{35} = \frac{2}{3 \times 5} + \frac{11}{5 \times 7} \\
 & = \frac{2 \times 7}{3 \times 5 \times 7} + \frac{3}{3} \\
 & = \frac{14}{105} + \frac{33}{105} \\
 & = \frac{47}{105}
 \end{aligned}$$

## APPENDIX II.

## *The Standard-Form Method of Multiplication of Decimals.*

By this method the multiplier is multiplied (or divided) by such a power of 10 as will reduce it to the "standard-form," that is, to the form in which there is one digit and one only to the left of the decimal point. This operation is balanced by dividing (or multiplying) the multiplicand by the same power of 10.

$$\begin{array}{r}
 \text{e.g. } 126.34 \times 23.58 = 1263.4 \times 2.358 \\
 \quad \quad \quad = 2979.0972
 \end{array}
 \quad
 \begin{array}{r}
 1263.4 \\
 \quad \quad \quad 2.358 \\
 \hline
 2526.8 \\
 379.02 \\
 63.170 \\
 \hline
 10.1072 \\
 \hline
 2979.0972
 \end{array}$$

### APPENDIX III.

## *Decimalisation of Money.*

(1) Since 1s. = £0.05 we may use the following rules :—

(a) To express any number of shillings as a decimal of £1, multiply that number by 5 and set the result down as hundredths :

e.g. 17s. = £0.85;

(b) To find the number of shillings corresponding to a given decimal of £1, divide the hundredths by 5 :

e.g. £0.65 = 13s.

(2) Since  $\frac{1}{4}$ d. does not differ much from £0.001, we may express any number of pence approximately as a decimal of £1 by putting £0.001 for every farthing, that is, by multiplying the number of pence by 4 and writing the result as thousandths.

By this method we should have—

$$6d. = £0.024$$

But the correct value is

$$\begin{aligned} 6d. &= £0.05 \div 2 \\ &= £0.025 \end{aligned}$$

Hence the error in using this method is £0.001 for every complete 6d.

We may then formulate the following rules:—

(a) To express any number of pence as a decimal of £1, put £0.001 for every farthing and add £0.001 for every complete 6d. or fraction of 6d. greater than one-half. For 3d. add £0.0005.

$$\begin{aligned} \text{e.g. } 7\frac{1}{2}d. &= £0.030 + £0.001 \\ &= £0.031 \end{aligned}$$

$$\begin{aligned} 3\frac{3}{4}d. &= £0.015 + £0.001 \\ &= £0.016 \end{aligned}$$

$$\begin{aligned} 9\frac{1}{4}d. &= £0.037 + £0.002 \\ &= £0.039 \end{aligned}$$

$$\begin{aligned} 9d. &= £0.036 + £0.001 + £0.0005 \\ &= £0.0375 \end{aligned}$$

(b) To express a decimal of £1 in pence, take one farthing for every thousandth in the decimal and subtract a farthing for every 6d. or fraction of 6d. greater than a half.

$$\begin{aligned} \text{e.g. } £0.022 &= 5\frac{1}{2}d. - \frac{1}{4}d. \\ &= 5\frac{1}{4}d. \end{aligned}$$

$$\begin{aligned} £0.049 &= 12\frac{1}{4}d. - \frac{1}{2}d. \\ &= 11\frac{3}{4}d. \end{aligned}$$

The error involved in the use of these rules is always less than half a farthing except in the case of the equivalence

$$\begin{aligned} £0.037 &= 9\frac{1}{4}d. - \frac{1}{2}d. \\ &= 8\frac{3}{4}d. \end{aligned}$$

Here the error is a trifle over half a farthing.

*Note.*—When greater accuracy is needed for more advanced work it can be obtained by using the above method but making an exact instead of an approximate correction for the error involved.

Since £0.001 is the exact error for every 6d., the exact error will be one-sixth of £0.001 for every penny. Hence in expressing any given number of pence as a decimal of £1, the amount to be added to correct the error will be:—

$$\frac{£0.001 \times \text{No. of pence}}{6}$$

$$\begin{aligned} \text{e.g. } 2d. &= £0.008 + £0.002/6 \\ &= £0.008 + £0.000333\dots \\ &= £0.008333\dots \end{aligned}$$

$$\begin{aligned}
 5\frac{1}{2}d. &= £0.022 + £0.0055/6 \\
 &= £0.022 + £0.00091666 \dots \\
 &= £0.02291666 \dots
 \end{aligned}$$

$$\begin{aligned}
 8\frac{1}{4}d. &= £0.033 + £0.00825/6 \\
 &= £0.033 + £0.001375 \\
 &= £0.034375
 \end{aligned}$$

*An Alternative Method.*

The following method of decimalising money is often used :—

Divide the pence by 12 to reduce them to a decimal of a shilling, and then divide the shillings and the decimal of a shilling by 20 to reduce them to a decimal of £1.

$$\begin{aligned}
 \text{e.g. } 7s. 2d. &= 7s. + 2/12s. \\
 &= 7.166 \dots \text{ s.} \\
 &= £7.166 \dots /20 \\
 &= £0.358333 \dots
 \end{aligned}$$

$$\begin{aligned}
 11s. 5\frac{1}{2}d. &= 11s. + 5.5/12 s. \\
 &= 11.458333 \dots \text{ s.} \\
 &= £0.57291666 \dots
 \end{aligned}$$

$$\begin{aligned}
 17s. 8\frac{1}{4}d. &= 17s. + 8.25/12 s. \\
 &= 17.6875s. \\
 &= £0.884375.
 \end{aligned}$$

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APPENDIX IV.

*Management of Income. Household Accounts.*

The aims of this course are to teach girls (1) how to manage an income and (2) as a means to this end, how to keep accounts and to summarise them. Thus the teacher should refrain from instructing the class as to the "proper way" of spending a given income. Each girl should work out the problem for herself, the teacher giving such aid as may be necessary in the way of information, but being very sparing of advice. If the first attempt at the solution of a given problem is proved by the girl's accounts, and by her summary of them, to be unsatisfactory, she tries again until a reasonably satisfactory solution is reached.

A.—*Management of personal income in simple cases.*

e.g., The expenditure of a typist (or clerk) receiving an income of £3 a week.

At first the sums to be set aside for clothing, board and lodging, savings, etc., may be decided more or less arbitrarily between limits arrived at after comparison of known cases by teacher and class. Next the details of these items must be followed up.

## 1. Clothing.

- (a) The initial outfit needed by a girl clerk (or servant or factory girl), including details as to amounts of material needed, cost, etc.
- (b) The amount needed yearly for renewal of this outfit, including a statement of the various items to be replaced every year, two years, etc.

2. Savings. Investment of savings, insurance, etc. See syllabus of "Arithmetic of Citizenship."

B.—*Management of an income for a family.*

1. An income is chosen corresponding approximately to the average earned by the parents of the girls in the class. Facts as to rent in the neighbourhood of the school are supplied either by the teacher or by the girls, and the supposed number of members in the family agreed upon. Each girl then deals with the problem by the method indicated above.

2. The same problem is then set with different conditions as to amount of income, number in family, etc., emphasis being laid on the importance of making variations in income affect, where possible, the luxuries rather than the necessities of life.

## APPENDIX V.

*Arithmetic of Citizenship.*

The lessons aim at giving simple but clear notions upon the municipal economy by an elementary study of its financial aspect. For methods, see Nunn, "The Arithmetic of Citizenship," in the *School World* (Macmillan) for March and April, 1918.

## 1. Local rates.

- (a) The public burdens of the householder. Rent, rental value and rates. Calculations of rates, etc.
- (b) A graphic analysis of the rates exacted in different London and suburban boroughs; division into local and county expenditure. Calculations of amount contributed by householders under given conditions of rent, etc., to the different services—relief of poor, education, etc.

## 2. County Finance.

A graphic analysis of the County Council annual balance sheet (as given in "Whitaker's Almanack"). Discussion of the items :

- (a) Sources of revenue : (i) local contributions ; (ii) national contributions ; (iii) earnings of tramways, etc.
- (b) Main items of expenditure.
- (c) Sources of capital as distinguished from revenue ; loans.

Arithmetical exercises (calculation of percentages, etc.) based on discussion.

3. National Finance.

A graphic analysis of national income and expenditure (as given in "Whitaker's Almanack"). Discussion of the items :

- (a) Sources of revenue ; taxation, direct and indirect ; customs and excise ; stamps ; death duties, etc. The Post Office.
- (b) Expenditure on the Services. Grants in aid of local taxation ; (education, etc.).
- (c) The annual Finance Act ; procedure in Parliament.

Arithmetical exercises based on discussion.

4. Loans. Capital in Industry.

- (a) Municipal and governmental loans, home and foreign. Illustrations from War Loans, etc., including examination of a prospectus.
- (b) The repayment of a loan ; interest and sinking fund. Illustrations from Government loans and procedure of Building Societies. Leases and freeholds.
- (c) Joint stock companies ; limited liability. Debentures and ordinary shares ; application and allotment ; simple problems on interest on investments. Illustrations from newspaper advertisements, etc. Examination of annual report of a company.

4. Banking.

- (a) The bank in relation to its depositors ; current and deposit accounts ; cheques ; interest.
- (b) Work of banks in facilitating business transactions. Drafts and cheques. The Bank of England as the "bank of the banks." The Clearing House.
- (c) Banks in relation to industry. Loans ; discounting of bills, etc.
- (d) London as the great financial centre of the world ; bills of exchange.

5. Insurance.

- (a) The fundamental principles of insurance ; probability.
- (b) Life insurance ; conditions determining premiums ; types of life insurance.
- (c) Insurance against sickness, unemployment, etc. ; fire and marine insurance.

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As it is anticipated that many Training Colleges will wish their students to have copies of Professor Nunn's "Elementary School Syllabus in Mathematics," which has appeared in the last and current numbers of THE FORUM OF EDUCATION, it has been arranged that copies of the article may be obtained by ordering direct from the Managing Editor, FORUM OF EDUCATION, The University, Edmund Street, Birmingham. Individual copies 5d. post free. Twenty copies at the rate of 4d. each post free. One hundred or more at 3d. each post free. It is requested that orders be sent in as soon as possible.

# Report on the Use and Value of the Cinematograph in Education.

Imperial Education Conference (H.M.S.O. 1/-.)

THE Imperial Education Conference has done a very useful service in exploring some of the possible uses of the cinema in education. The investigation was entrusted to a committee, with Lord Gorell as chairman, composed of representatives of the teaching profession, of education authorities, and of the cinema industry. Their Report, recently issued (H.M. Stationery Office, 1s. net), contains much interesting evidence from teachers who have experimented with the cinema, either in school or in picture-houses where special exhibitions have been provided for children ; in several cases reports of Inspectors are appended. There is a particularly valuable Memorandum on the Film in Education, by Mr. J. C. Stobart, H.M.I., and a useful Technical Description of Projector and Films (contributed by Mr. C. M. Hepworth, one of the trade representatives on the committee). This Report in fact embodies the most comprehensive discussion of the problem that has yet appeared in England ; it paves the way to a scientific investigation of what may turn out to be a really important aid to education.

As might be expected, the findings of the committee are tentative. Their work was done under difficulties, as they had no public funds to pay for expert witnesses or for carrying out adequate experiments. The inquiry was therefore conducted by means of a questionnaire, forwarded through the Board of Education to local authorities at home and through the Empire ; a précis of the relevant replies is given in an Appendix. "The Committee recognise that the information they have thus collected cannot be regarded as exhaustive ; such as it is, it clearly indicates, first, that more use is being made of the cinematograph in connection with educational purposes than has been generally known ; and, secondly, that such use both in this country and throughout the Empire must still be regarded as in an experimental stage" It will thus be seen that the inquiry (as was doubtless inevitable) has merely elicited opinions ; there has been no attempt at psychological investigation, no accurate comparison of the effect of lessons given with and without the cinema, and very little attention has been paid to hygienic considerations : in one instance a school medical officer "has reported that there is no reason to anticipate any adverse effect on the children's eyesight." One can hardly rest content with such a vague remark ; indeed, until the best optical conditions (especially the distance and the angle of elevation) have been established, the possible dangers of the cinema remain unknown. The Committee are fully aware of many problems which they have not attempted to solve :—

"What length of film is most suitable for a single lesson ? Should the pace of a film be slowed down to enable a child to take in one visual impression before it is succeeded by another, and to accompany this visual impression by some process of thought ? Should not the 'captions,' or art titles, be displayed for a longer period to enable a child to grasp their meaning ? Should there, indeed, be art titles at all, or should not

the film be given in preference to a running commentary carefully prepared by the teacher and be in fact an illustrated lesson? Should there even be a commentary at all during the exhibition of the film, or should the child be dependent solely on preparatory work? Should a film be shown more than once at the same sitting to ensure clarity and permanence of impression? If so, what form should the intermediate instruction take—commentary merely, questioning as to what has been observed and what missed, or what? How are the visual impressions obtained from the cinematograph to be tested—by questioning, a set lesson, written compositions, or what? From what age should children be introduced to the cinematograph?"

Many of these questions can be answered only by careful experiment. Others, however, may be tackled, at least partially, by general educational theory. Thus it is always necessary to distinguish apparatus used solely as illustration from that which forms the material of a lesson. There seem to be strong *a priori* objections to the use of the cinema as a teaching method. On this point Mr. Stobart is clear: "The film cannot be much more than an illustration. By itself it cannot teach. A film of Egypt, however carefully titled, would be unintelligible without the preparation and exposition of a skilled teacher. This is not always realised by theorists, who say: 'Why tell them about Egypt? Get a film and show them Egypt.' Such enthusiasts even argue that the provision of films would be a great economy, enabling us to dispense with hundreds or thousands of teachers. They are victims of a fundamental error. Telling about things, or even showing things, is a very small part of education. A pupil's mind must be set in motion before the learning process can begin."

The warning is salutary. As always, one comes back to the teacher. If money is to be spent on educational purposes, it is the best economy to see how much can be devoted to the teacher, by training him better in the first place, and later by paying him such a salary that he will feel his profession "worth while," and so keep himself worthy of it. Then, if there is any money left, it can go to incidentals. Obviously, these are not to be despised. Again to quote Mr. Stobart: "The best teachers will desire to enrich their teaching by every available means of illustration. A good teacher could, no doubt, teach well without any apparatus whatever, but he would desire to employ every adjunct that was available, and the richer he was in his outfit of teaching material the more fruitful his instruction ought to be."

It is therefore well to examine the conclusions reached by teachers themselves, "as the result of their personal observation and experience." These are summarised in the Report as follows:—

- "(1) The cinematograph stimulates the imagination, encourages observation, and awakens a keen interest in the subjects illustrated;
- "(2) Visual impression imparts instruction in some subjects more easily, more vividly and more durably than many oral lessons;
- "(3) The cinematograph enlarges the scope of a child's experience;

- “ (4) The cinematograph is, moreover, of special use indirectly in the teaching of English by providing subjects of real interest for oral conversation and written composition ; and
- “ (5) The exhibition of wholesome and elevating pictures in school tends to educate a child’s taste and, therefore, to create a demand for a higher standard of motion pictures in the future.”

Of these claims, some are less controversial than others. Thus nobody would deny (3) ; at the same time “enlarging the scope of the child’s experience” can be effected in so many ways that it is no particular argument for the cinematograph. The claim made in (4) is similarly valid ; and one certainly welcomes any method of providing material for composition. But here again the cinema is but one of many means, and not necessarily the most effective. Number (5) suggests an interesting point—though it is not directly connected with school work. The public taste in films undoubtedly needs education ; and it is only by raising the general standard of taste that films can be improved : the producer can at present justify his detestable stuff on the ground that he gives the public what it wants. The matter is the more urgent if, as seems possible, the “ pictures ” are to be the only books of a large proportion of the population. Appalling as this prospect may be, it is no good shutting our eyes to its likelihood ; rather we should minimize the evil by training children to “ read ” this new medium as intelligently as may be. An Inspector (quoted in the Report) remarks that the cinema may, “ by fostering a quick and careless way of looking at things, develop the habit of the unseeing eye which never gets beyond the obvious.” Secondly we must, as already noted, by showing only good pictures, eliminate desire for the bad. Though how a course of the most blameless films could, by itself, prevent the possibility of such abortions as the recent version of “ Tess,” it is hard to see.

To return, however, to the first two claims, which have more direct pedagogic bearing. Neglecting such vague phrases as “ stimulate the imagination, encourage observation ” (which are apt to collapse at the touch of a psychological pin), we may readily believe that the cinema “ awakens a keen interest in the subjects illustrated.” The only question is, Does the interest survive ? It is so easy to “ awaken ” what is popularly called “ interest,” so much harder to ensure that the interest shall grow and construct. The school subjects to which the cinema is claimed to give assistance are “ nature study, geography, science, and scientific and industrial processes ” ; the committee evidently feel grave doubts as to its value for history and literature. It is in these subjects that “ visual impression ” is regarded as “ imparting instruction more easily, more vividly, and more durably than many oral lessons.” But a visual impression is not necessarily one of motion. “ It is solely as a means of depicting movement,” says Mr. Stobart, “ that the film claims a place in the school. Many instructional films now displayed attempt to depict scenes which could be equally well, if not better, illustrated by the magic lantern.” The truth of this statement has been substantiated by an experiment on “ The Didactic Value of Lantern Slides and Films,” conducted by G. Révész and J. F. Hazewinkel, of the Psychological and Pedagogical Laboratory, Amsterdam (published

in *The British Journal of Psychology*, October, 1924). This investigation shows that "the energetic propaganda made for the film on the strength of its alleged didactic importance is not well-founded." For children up to the age of seventeen, the lantern gives far better "results of permanent and essential value" than the film—even the interrupted film (which for teaching purposes proves no better than the continuous). The reason seems to be that the movement shown by the film is distracting: "the attention of the observer is mechanically centred on the moving objects of the film." Further, "it is of especial importance to notice that not only the objects and actions shown by each method were on the whole better observed in the case of the lantern-slides, but also that features which are usually considered typical of the film pictures quite as effectively arrested the attention of the pupils, occasionally even more so, in the lantern-slide."

Thus one piece of genuine psychological research disproves much of the efficacy claimed for the peculiar merits of the cinematograph. It should be a warning to the enthusiast to go slow. By all means investigate every new device that may assist education—the gramophone, wireless, psycho-analysis, the aeroplane if need be (for some day the first lesson on maps may be given from the air)—but see that the investigation is scientifically conducted, with "controls" for each experiment. Mere novelty is neither here nor there.

F. A. CAVENAGH.

## Reformatory Reform.

By Isaac G. Briggs. (London, 1924. Longmans, Green and Co. Pp. xviii + 228. 7s. 6d. net.)

THE social problems presented by crime are being much discussed just now. And it is generally admitted that the solution of these problems is to be found in the correct handling of juvenile delinquency. This book is a notable contribution towards the elucidation of this question. The author writes with first-hand knowledge. He was sentenced to three years detention in a reformatory school. He describes, quite candidly, the series of offences which led up to this. But he complains, and probably with much justification, that his case was handled with very little understanding.

The book is divided into three parts. In the first part, Mr. Briggs gives us an account of life in the reformatory. The picture is, literally, an appalling one. (It must not be forgotten that Mr. Briggs' statements are *ex parte*, and that there is another side to be heard.) Twelve years have elapsed since the time of which he writes ; and it is possible that there have been changes. Many of the abuses described are, probably, inseparable from any institution in which ninety lads are herded together. This raises the question as to whether such institutions provide the best means of dealing with juvenile delinquency. Mr. Briggs does not repeat the oft-made charge that these institutions are training grounds for crime. He considers that there is very little mutual contamination in this respect, and that the schools only train criminals in so far as they do not train their inmates to do anything useful. But three charges are brought which deserve the very gravest consideration. The first of these relates to the gross, and, apparently, the studied degradation to which the inmates were subjected, and the entirely futile character of the so-called industrial training. Some attempt seems to have been made to teach such forms of boot-repairing as were useful for immediate domestic needs. But such training is quite useless for the purpose of earning a living in the outside world. The only other training was in the roughest kind of field labour. And the licensed lads were placed out on farms in remote country districts. As most of the lads came from large cities, and had no liking or aptitude for agricultural life, it is not surprising to learn that they drifted back to the cities as soon as the chance presented itself. Mr. Briggs urges that the proper road to " reform " is by raising the subject's standard of taste, and enlarging the range of his needs and aspirations. In this connection he seems to deprecate intellectual training. While admitting that much so-called education is of a very sterile character, we cannot but feel that a well-conceived system of intellectual training will do much in the desired direction. Mr. Briggs also contends that the only way to induce a lad to lead a social life is to equip him with the means of earning the money with which to satisfy his requirements. This can only be achieved by teaching him a skilled trade. And, as nearly all such trades involve the use of machinery, this implies furnishing the reformatory with the most modern industrial mechanism. Here looms up the great question of expense, a question with which we shall deal later.

The second charge is against the staff of the reformatory. It is urged that the officials in immediate charge were, in most instances, quite unfitted for their most difficult task. They are expressly acquitted of intentional brutality. They were simply ignorant of boyish or other psychology, and were hide-bound in traditional repressive measures. Also there was far too much uncontrolled power in the hands of the superintendent. This question of staff is of the utmost importance. The personnel is, or should be, the system. Buildings and administrative details are of quite minor moment.

Finally, the indictment is made against the attempt to run the institutions on self-supporting lines. This resulted in a direct inducement to the managers to keep their institution full, thus producing much undesirable competition as regards maintenance rates. The other two accusations which we have just dealt with largely resolve themselves into questions of expenditure. The complaint is sometimes made that more is spent on the reformatory inmate than on the non-delinquent case. More must always be spent on a hospital patient than on his healthy brother. No good results will ever be obtained from reformatory measures until such time as the institutions are regarded and worked as hospitals, for such, in fact, they are. As to the complaint that the lot of reformatory inmates should not be preferable to that of the "honest poor," Mr. Briggs replies that the lot of the latter class is quite unjustifiably bad, and furnishes no reason for making the lot of any other class worse.

The second part of the book deals with present methods of treating juvenile delinquents. Mr. Briggs gives a most glowing account of Borstal. He describes children's courts at some length. These courts are still far too formal, and too many people are present when cases are being heard. The courts are presided over by magistrates who mean to be all that is kind and just, but who have far too high an estimate of their abilities as amateur psychologists. To attempt to elicit any useful information as to the "cause" of an offence by a few questions asked of a frightened child in a public court is entirely futile. Such information can only be obtained by most careful, and often prolonged investigation by a thoroughly trained psychologist. This necessary investigation should precede conviction. It is wisely said that before conviction the official can work with the patient, after conviction he can only work for him.

In his third part Mr. Briggs briefly discusses certain general points. He criticises the present divided control. The managers, the Home Office, and (in the case of industrial schools) the Board of Education all have a hand in the matter. There is, no doubt, much to be said for a more unified control. But if the right type of local managers can be found, and we admit that this is a large proviso, we favour leaving considerable powers in their hands. Too much central control is only too apt to result in a stereotyped uniformity. Above all else, we require the freedom to try experiments. Local conditions vary, and these have always to be taken into account. Reformatory institutions of all kinds require to be carefully graded, each to suit some particular class of inmates. And a central clearing station is wanted, at which the inmates can be carefully examined before being assigned to the most suitable institution. We want to adapt the institution to the inmate. We must no longer attempt to force the inmate into the institution pattern.

It is a grave question whether the whole subject of anti-social conduct should not be treated as a unity. Delinquent conduct is only one branch of the tree. The justification for the segregation of lunatics and mental defectives is that they are anti-social. And the education authorities deal with many "problem children." There is much to be said for bringing all these activities under a unified control, perhaps as a branch of the Ministry of Health.

But, however this may be, it is clear that the bogey of so-called economy must not be allowed to alarm us. The problem of delinquency can only be dealt with on "Great-war" lines. Millions of money, and an ample supply of the best men will be wanted, before any real headway can be made. Economy in this direction is a luxury which we cannot afford to indulge in.

It is not generally recognized how many requirements have to be met in a well-devised reformatory system. Some of these requirements are mutually conflicting. As an example, let us take the custom of granting early release as a reward for good conduct in the institution. Looked on as a means of ensuring peaceful administration of the institution, this plan has admirable results. Mr. Briggs, however, urges that the lad who exhibits the best institutional conduct is not necessarily he who is best fitted for release. The test of the value of the institution comes only when the inmate is sent out, to face once more the temptations of the outside world. Until that time comes, the word "reform" is meaningless. And the efforts of the best reformatory will be useless, unless followed by a well-devised system of after-care.

Though the necessity for the study of individual psychology is indicated, and though the remark is made that "the abnormal boy is in most ways very normal," this particular topic is not adequately handled. And the book rather ignores the attempts which are being made in other countries to solve these problems. Some of the children's courts in America are in advance of those in this country. In certain American cities the probation system is wonderfully organized, the chief probation officer being a physician with psychological training. And in Belgium a most interesting experiment is now being made, in the form of an institution for the prolonged and intensive study of unconvicted youthful offenders.

No book of this kind can be written without throwing much light upon the author's own psychology. Many of Mr. Briggs' complexes are very obvious. Like that of all books written with a propagandist purpose, the language is inclined to be violent. For good or ill, there are no half-tones. There is no index, and this is a grave fault. But the book, as a whole, can be highly commended. And it should succeed in its avowed object, that of causing its readers to think.

M. HAMBLIN SMITH.

## Montessori and Her Inspirers.

By Robert John Fynne, Professor of Education in the University of Dublin.  
(Longmans, Green and Co. Pp. 347. Crown 8vo. 6s. net.)

THIS book professes to have a double object—to give a critical and an historical account of the Montessori Method, and to attract attention to the work of Pereira, Itard, and Seguin, writers chosen by the author as the chief sources of Dr. Montessori's inspiration. Perhaps the conjunction of criticism, history and inspiration is responsible for a certain aimlessness in the earlier part of the book and notably in the chapter on Pereira. This contains a number of interesting biographical details, a catalogue of previous views on the education of deaf mutes beginning with Lucretius, a conspectus of the progress made by anatomy and physiology during the previous two hundred years, a rather long account of Pereira's discovery of the "fundamentality" of touch, his classification and treatment of deaf mutes, his Dactyllogie and his methods of teaching individual pupils. To bring these and other topics within the compass of fifty pages and to embellish them with passing references to such modern topics as "engram-complexes" and "secondary dispositions" is a heavy task and it is likely to provoke the reader to query the relevance of the general treatment to the history of the Montessori Method, and the criticism of its general principles.

An author, like Montessori, is obviously unable to choose either her predecessors or her critics: should she be given the right of naming her inspirers? Apparently not, for Mr. Fynne tells us (p. 10), that "Dr. Montessori appears to know very little about Pereira and nothing about his very remarkable achievements." If the right be denied to the author and accorded to the historian or the critic the basis of selection should be stated with care. A previous work (that of Dr. Wm. Boyd) dealing in less detail with the educational ideas of Pereira, Itard, and Seguin, was entitled "From Locke to Montessori," but, after some discussion, Mr. Fynne excludes Locke and Rousseau from the list of Montessori's inspirers. The influence of some of the main principles of these writers, on the Dottoressa's Method is admitted but the claim is made that Montessori "has interpreted these principles in the light of science, and has applied them to the practical education of individual pupils in strictest possible accordance with the *observed* facts of the nature and needs of childhood." (p. 7). But the concluding chapters of Mr. Fynne's book bear repeated witness against the "claims of Montessori's pedagogy to be ranked 'in the series of modern sciences.'" (p. 311). Her experimentation is nothing more than the "crude application of the method of trial and error" . . . (314), and Montessorianism is held to lag behind certain movements towards a sound practice (p. 337). The lack of a scientific interpretation of principles and of practical application to individual pupils cited in the introduction as characteristic of the work of the great reformers as compared with that of Montessori turns out to be a property apparently common to Montessori as well as to themselves! The real ground of excluding Locke and Rousseau, seems, from the

general discussion, to be the confinement of their exposition (1) to individual pupils, (2) to normal, not abnormal material. Mr. Fynne's object is apparently to give an historical account of certain practical schemes for the education of abnormal children.

This historical presentation necessitates continual reference to principles, some of which (*e.g.*, the concept of liberty) might have been made clearer by a wider selection of sources of inspiration, but it also affords scope for the correction of a number of chronological errors made by Montessori and other writers. In the interesting exposition of Montessori's conceptions of freedom, however, the author himself departs from the historical order. He informs the "majority of teachers and students of education" (p. 241) that they are not really right in regarding this principle as the fundamental one by which the system must stand or fall, and after evaluating the basic conceptions proceeds to state Montessori's "*biological* concept of liberty in pedagogy" (p. 242), although this was written five years after the statement of the "social aspect of freedom" (p. 244). Montessori may be impatient of the "logically ordered exposition" that Professor Fynne expects, but the history of the Montessori Method should present the historical order of the evolution of ideas in the mind of its author and treat with a little more respect Montessori's clear statement—or belief—that the "fundamental principle of a scientific pedagogy must be the liberty of the pupil." In his "critical considerations" Mr. Fynne deals almost entirely with theoretical problems rather than with the Montessori *Method*, and raises too many points to be adequately discussed in the space at his disposal. The remarks on the biological conception of education—"obviously the ultimate conception inclusive as it is of all educational principles and practice"—the dictum that educational principles must be drawn from biology—and "education positively based on that science"—the emphasis of sense training in education (apparently for both normal and abnormal children) and the defence of Montessori's methods from the accusation of formal training would require a wider treatment if they are to escape the charge of dogmatism against which Professor Fynne so clearly and eloquently protests. We think, too, that if Dr. Montessori intended to found her pedagogy solely on biological principles, her postponement of a consideration of religious education has been very wise. It seems rather difficult to square customary ideas of moral training with Professor Fynne's conception of education as including "*all* willed efforts to modify the expanding and developing life of the educable organism," but Fagin, no doubt, would easily have got over the difficulty.

There is an excellent bibliography which, however, omits any reference to the able criticism of Montessori's work by the late Professor Green in the *Journal of Experimental Pedagogy*.

W. J. MACCALLISTER.

## The Decay and Restoration of Civilization. Civilization and Ethics.

By Albert Schweitzer. (Dale Memorial Lectures). (A. and C. Black. 1923. Pp. 298 and 105 respectively.)

IN few authors can versatility in diverse fields be combined with such a thoroughness and mastery as in Dr. Albert Schweitzer. The writer of the most authoritative work on Bach's music and himself a consummate player upon the organ, he is known in other circles as one of the most brilliant and challenging of theologians and biblical scholars, while finally he is a qualified doctor who has served for years as a medical missionary in the heart of tropical Africa. And now he comes forward with a comprehensive "Philosophy of Civilization," of which the first two parts already published prove him to be as penetrating and erudite in the field of philosophical and ethical study as in the other domains he has already made his own. In comparison with Dr. Schweitzer's massive and many-sided experience of life the material out of which many philosophers venture to build their edifices seems disconcertingly flimsy and thin. Here is an idealism which certainly (in William James' phrase) "runs thick," and any but the most complacent and self-satisfied of critics must feel humbled and disarmed before it. These volumes only reinforce the impression, which all who have been fortunate enough to meet their author must have received, of a personality of rare scope and power, singularly free from illusion and cant, especially the easy cant of a false optimism, and yet inspired by an unquenchable moral enthusiasm and faith in human destiny.

The burden of the first and shorter of the two volumes under review, serving as an introduction to the series of four books which will complete the "Philosophy of Civilization," can be briefly stated. In it Dr. Schweitzer diagnoses contemporary civilization as being in a fundamentally diseased condition, and arraigns "Philosophy" as in large part responsible for its plight. It is his contention that an epoch is progressive or stagnant or decadent according to the *Weltanschauung* which dominates it. The leaders in the practical conduct of affairs "can only carry out what is already in the thought of the age." In an age which lacks a prevailing well-thought-out ethic to serve as a basis for political and social activities and to harmonize the diverse kinds of development, economic, scientific, and cultural, communities will inevitably tend towards chaos and barbarism, and unless a sufficient ethic can be found and taught, based on a *Weltanschauung* proof against criticism from the modern mind, civilization will be doomed to collapse. In the author's view the nineteenth century is the history of a profound social disintegration. Progress in this or that human activity has been won at the cost of a loss of self-direction and unity and real humanity. And the cause has been the failure of thought, that is, of thinkers, to produce and develop a rational scheme to satisfy modern man and his needs. Civilization

can only be saved if we can succeed in requickening it by the power of ethical ideas.

And the mischief is that we *have* the ideas apparently, but they have lost their potency. "Our age has discovered how to divorce knowledge from thought, with the result that we have, indeed, a science which is free, but hardly any science left which reflects" (p. 72). It is the same with the "historical sense" which we flatter ourselves distinguishes our own from preceding ages. "We have no real interest in what is valuable in the past. Its great spiritual achievements are mechanically registered, but we do not let ourselves be touched by them. . . . Nothing has any value for us but what can be squared with our plans, passions, feelings, and æsthetic moods of to-day. With these we live ourselves by lies into the past, and then assert with unshaken assurance that we have our roots in it."

The only hope is in a thorough rethinking of our moral ideas, digging down below the litter and debris of traditional thought so as to get to the springs beneath.

Dr. Schweitzer's criticism of modern life and thought is forcible and convincing, even though one may feel here and there that an English writer would have put his indictment somewhat differently. But the "emotion of the ideal" (Kidd) is not really left out of the account, and it is wholly salutary to be reminded that the need for Thought comprises more than an intensification of "scientific" sociology and political study. But it is hard perhaps for an English reader, for whom the middle eighteenth century remains on the whole a somewhat arid period, to share Dr. Schweitzer's almost unbounded enthusiasm for this epoch of *Aufklärung*, in which he sees "the greatest and most valuable manifestation of the spiritual life of man that the world has yet seen."

The second of the two volumes before us—"Civilization and Ethics"—explains if it does not altogether justify the immense admiration the author has for this, the age of rationalism *par excellence*, in which "there prevailed through all circles alike a faith in thought and a reverence for truth." For in this book he advances in outline merely (the later volumes promise a filling in of the picture) his own ethical principle, setting it over against the famous systems of antiquity and modern times. And we see that is in effect a new and more profound humanitarianism.

The problem of saving civilization is that of finding a *Weltanschauung* (the English "world-view," the best English rendering available is by no means so expressive a term) which shall be in some sense *optimistic* in the sense of leading to an affirmation of the value of life and the achievements of man. In some of his most valuable chapters the author passes in review the ethical doctrines of the past from Socrates to Schopenhauer and Nietzsche. We are shown—and the point is not always sufficiently brought out—how ethic and *Weltanschauung* influence one another. It is Schweitzer's contention that whereas a pessimist view of the world can find no real place for ethics (and hence none for "civilization") the attempt to think out an "optimistic" ethic consistently leads on the traditional lines always to a *cul-de-sac*. He therefore teaches

that for thought an optimistic view of the *world* must be given up as out of reach, but given up in order that a triumphantly optimistic view of *life* may be the more freely affirmed. By drawing upon our inner experience of life we may, he hints somewhat obscurely, come to recover in a "mystical" way, our optimistic *Weltanschauung*.

His own principle then follows—reverence for life, or more fully, "self-sacrifice for the sake of other life motived by reverence for life itself."

The chapters that attempt to elucidate this principle are avowedly introductory to the more adequate account that will follow, but it must be admitted that Schweitzer's discussion promises to be suggestive and penetrating rather than constructive. None the less these later pages abound with memorable sayings all instinct with a rare nobility of mind. The author's own position has obvious kinship both with Kant and Bergson. As with Kant persons are never to be regarded as instruments merely or the vehicles of policies, however socially advantageous: while, like Bergson, Schweitzer's view embraces life in all its forms and at all its levels, so that his ethic prescribes "duties" to animal and plant and refuses to be confined to the sphere of merely human relations. At times one feels that his doctrine supplies that ethics of the life-force for which readers of Bergson have so long been waiting.

There are matters in this volume that clamour to be discussed, and dicta pungent, vivid, and profound that cry to be quoted. We will rather briefly note three of the most suggestive aspects of Schweitzer's exposition. The first has just been mentioned. Few who have seen animals maltreated, or even a wood laid waste by artillery fire, can remain wholly satisfied with an ethics that denies "rights" to sub-human animate nature, and Schweitzer will have none of it. In the silence and solitude of the African forests, he tells us, he has come to feel the unity of life and man's responsibility towards all life. The second point is his uncompromising challenge to the familiar absolutist maxim of "my station and its duties." No man is to be *merely* the discharger of a social function, for that is to subordinate the personal to the trans-personal, life to system. Hence "do not be satisfied without some sideline in which you may give yourself out as a man to men." "We are not to be mere "trustees and executors of general interests."

Finally there is an aspect of this new humanitarianism (to give it a name that has been degraded by unworthy usage) which gives it a specially tonic quality. Few books on ethical theory suggest more unmistakably that the problem of human life and conduct is one that comes home to the author with overpowering urgency and poignancy. These pages breathe a spirit not always to be found in academic treatises on ethics, the sense of solidarity in suffering and guilt, between man and man, and between men and the animal world as a whole. One may say that Dr. Schweitzer has repeated in his fashion the stern demand that Keats felt was laid upon the poet, and that he would have none write upon ethics save those

"to whom the miseries of the world  
Are misery, and will not let them rest."

We have left no space for criticism of the translation. Except for the intrusion of abominations like "percuss" and "judgmatically," it appears to be adequate. But on pp. 45-6 two alternative renderings of the same paragraph are both included, and once or twice references to philosophical works are inaccurate. Adam Smith wrote not of the "unbiassed third" but of the "impartial spectator"; and the accepted (and better) rendering of one of Nietzsche's book titles is "Thoughts out of Season," not "Untimely Considerations." In a work of the importance of this even minor blemishes are regrettable.

J. W. HARVEY.

## Book Reviews.

**Mnemic Psychology:** by Richard Semon. (George Allen and Unwin, Ltd. 343 pp. 14s.)

Semon is known in this country chiefly through his work of a biological nature, in particular by his doctrine of Mneme, which has been more widely spread through its exposition by Professor Nunn. Mneme is the "principle of conservation in the mutability of all organic happenings." Thus it covers not only conscious memory but changes of a physical nature made in the organism as a result of past experience and retained in such a way that future processes are modified by it. The unconscious indeed for Semon is the equivalent to the physiological. In this connection, Miss Vernon Lee, in her introduction to the present volume, aptly quotes Henry Head ("Studies in Neurology") to the effect that "on the higher physiological planes, impulses which are precluded from exciting sensation are not wiped out; they may produce profound and manifest effect, though they cannot excite consciousness. The postural impulses normally reach the cortex and evoke sensations of the position of various parts of the body in space. But if they are prevented from reaching the cortex the patient may be entirely ignorant of the position of his affected limbs, and yet the motions of these parts are perfectly co-ordinated."

Unlike the author's former volume, "The Mneme," the present work deals mainly with the psychology of the individual, leaving the question of heredity on one side for the time being. We had better introduce at once in our review some of Semon's technical terms for convenience of reference. To the residuum of a stimulation or a group of synchronous impressions he gives the name "engram" or "engram complex." To the re-stimulation of this engram complex resulting, for example, in an image, or group of images, corresponding to the original impressions, Semon gives the term Ecphory, though "resurrection" would seem a more suitable term than the "carrying out of a corpse for burial," as the Greek word came to mean.

Now we may state Semon's fundamental laws of Mnemic Psychology: "The Law of Engraphy is: All simultaneous excitement in an organism forms a connected stimulation-excitement complex, which as such works engraphically, *i.e.*, leaves behind a connected engram-complex which in so far forms a whole. The second mnemonic principle or Law of Ecphory is as follows: the partial return of the energetic situation which formerly worked engraphically operates ecphorically on a simultaneous engram-complex."

Semon holds that the term "sensation" is adequate to cover all psychic elements; he uses it to cover feeling and conation. His argument is not convincing here, and Semon himself speaks, on p. 73, of an "act of volition." Images are treated as a particular class of sensation. Part I of the book contains a very full discussion of sensory phenomena, especially with regard to the relationship of synchronous sensations. It is pointed out that "in binocular sight (as when the optical axes are crossed or a stereoscope is employed) the corresponding complexes of sensation produced simply equalise one another or overlap, and that this result takes place whenever sensations of different origin meet in the same field."

"Intensity" is not increased, though "vividness" is slightly. This resulting "overlapping" Semon calls "homophony," and there may also be homophony between an original sensation and a mnemonic sensation, or between two mnemonic sensations.

Part II deals with engrams and various kinds of association, ecphory, and with mnemonic sensations and their competition with original sensations.

In reference to association Semon makes some definite pronouncements, but whilst these are helpful through their clarity, once the technical terms are grasped, they are either not as original as he seems to think or they are subject to criticism. Thus take the passage: "All simultaneous excitations (manifested in our case by sensations) within our organisms form a connected simultaneous complex of excitations which, as such, acts engraphically, that is to say, leaves behind it a connected and, to that extent unified, engram-complex." I should demur at the first word, "all." As Stout long ago pointed out, the mere simultaneity of impressions does not involve their being bound together or associated in a unity. They require a unity of interest for such association. Secondly, the complete recall of the engram-complex following on the partial return of the excitation complex which has left an engram-complex behind, seems to me only another way of stating the recog-

nised fact that if a complex of impressions A, B, C is bound together by unity and continuity of interest then the recurrence of the stimulus which was responsible for A tends to result in the revival of A, B and C. Semon's emphasis upon the fact that there is "only one kind of association, that which is deduced from my principal proposition and which, that formula makes us infer, is association by simultaneity," has also, of course, been already long ago anticipated by James and others.

Semon's assumption that the course of Mnemic processes as such are not reversible seems questionable in the light of Wohlgemuth's research on "Associations Simultaneous and Successive" (*British Journal of Psychology*, vol. 7).

To sum up, Semon's work seems to be most valuable when it is most directly concerned with the relations of sensory phenomena. A lively introduction to the book is provided by Vernon Lee.

C. W. V.

**Studies in Contemporary Education** : By A. Mackie and P. R. Cole. (Sydney Teachers' College Press : Angus and Robertson, Sydney, N.S.W. 153 pp.)

The authors, the Professor of Education in the University of Sydney and the Vice-Principal of Sydney Teachers' College, have not furnished the book with preface, index, or date. It might be advantageous if future copies of a book on contemporary education bore a date on the title page. The book is divided into four sections, dealing with Theory, Experiments, Methods, and Education Abroad.

In the first section Professor Mackie considers the problem of education as being that of obtaining the maximum welfare for the individual. His thesis is that self-development can only be realised in the growth of social consciousness, social activity, and social purposiveness. He refers frequently to Russell's "Principles of Social Reconstruction." He disagrees with it in the main, though he gives one the impression that the disagreement is half-hearted. Political consciousness, which is regarded as the highest form of social consciousness, can only be achieved when the individual has the leisure to think and act. Hence he regards the limitation of the hours of labour and the development of a school training for leisure as of the utmost importance. He pleads with some force for training in the appreciation of the arts, music, and drama, as distinct from training in their performance. He concludes the section with a short summary of relevant psycho-analytic knowledge.

The second section, by the same writer, is an attempt to summarise Professor Burt's work in non-mathematical language. He defines experimental education as "The study of school practice by methods of scientific enquiry" (p. 38). There is an apparent contradiction between, "we find that the older age-groups of school pupils are more variable in their attainments than the younger" (p. 46), and "An examination of Table II shows that the range of classes through which each age group is spread is practically the same for each age group from eight to thirteen years" (p. 51). Tables I, II, and III, showing the retardation among pupils in N.S.W. schools, are interesting. The last part of this section is a chapter by chapter summary of "Intelligence Tests and School Reorganisation," by J. M. Terman and others.

The third section, by Dr. Cole, commences with what amounts to a condensation of James' views on Association and Habit ; it is followed by the Herbartian "steps" with American labels. The reasons given for the change of nomenclature are not too convincing, e.g., Preparation is replaced by motivation because the children's minds "have been prepared, their interest may have been aroused, but their deeper feelings have not been enlisted . . ." (p. 90). Three pages on, he shows how these deeper feelings are to be aroused. "The motivation may take such a form as the following :—' Which of you think Russia is a good country to live in ? ' No one responds. ' Which of you would expect life in Russia to have a number of advantages ? ' After two or three such questions the teacher finds the class fairly divided. ' I think we may devote this lesson to finding out whether Russia is a desirable country to live in or not . . .' " In the chapter on the teaching of history we are told that the secondary school pupil may be encouraged to "use causation, just as he can make use of time, without being able to define the concept" (p. 102). The pupil uses timepieces rather than time.

The fourth section, also by Dr. Cole, is in the nature of a mixed grill of nine topics treated in forty pages. The topics vary from Playgrounds in Winnipeg, Educational Expenditure in U.S.A., the Training of Teachers in Scotland, to the Dalton Plan in Tottenham.

E. J. G. B.

**Making of Man : A Study in Evolution :** by Sir Oliver Lodge, F.R.S., D.Sc., LL.D. (Hodder and Stoughton. 185 pp. 3s. 6d. net.)

The main theme of this remarkable book is the nature, reality and value of the evolutionary process. Its opening sentence reminds us that we are a "small and perhaps comparatively insignificant part of the universe"; the burden of several chapters is the evident imperfection and immaturity of mankind. But "Evolution itself is a revelation full of hopefulness. It signifies the slow development of being from a lower to a higher state, the gradual unfolding of things of permanent value." The way in which the individual subserves this process of development is the distinctive issue in Sir Oliver Lodge's general argument.

Drawing analogies from current theories of physical science the author argues for the permanence of human existence. It has usually been assumed that Life and Mind must have some kind of material vehicle but it is now recognised that "the material universe consists not only of matter alone, but of light, electricity and ether as well." "To think of atomic matter only leaves us with all manner of unsolved difficulties"; the conception of the ether is an absolute necessity for clear thought even about familiar phenomena. Sir Oliver's working hypothesis is that life's direct connection is not with matter at all, but with its ethereal counterpart; its vehicle may be something of which matter is only a sensuous modification. Death is a setting free of our more permanent and essential body from the matter-body—"an apparently alien thing which as all artists know, has to be coerced to represent our ideas and manipulated to display our conceptions." The struggles and efforts of the earth life have a training and disciplining effect, and make up an experience of the utmost value for the future stages of our development.

There are two fundamental points in the general presentation of this theory, the necessity for effort in the individual and racial life on earth and the points of contact of this earth-life with that of the higher powers in the "next" world. The first is clearly and forcibly presented. The management of a universe that contains creatures endowed with free-will cannot be void of effort: laziness is no attribute of God. Casual and easy achievements (even of the Deity) are held to be comparatively worthless. The fundamental property of matter is inertia; it does not resist but it reacts and without reaction no force can be exercised and no change is possible. Reaction is thus the condition of success and accomplishment is as much dependent on reaction as it is on the active force which calls reaction forth. The only other opposition in the universe is to be accounted for by free-will—"that invaluable but rather terrible and fearfully responsive grant"—which is really a spark of Divinity. The kindling and development of this spark is declared to be the ultimate aim of the age-long course of laborious evolution. The picture is thus one of an infinitely patient universe allowing freedom to mankind to work either in line with, or against, the Divine Purpose. . . . "The Higher Powers will not compel man."

In two passages, however, the author seems to depart from the idea of an evolutionary process. He distinguishes between "wholesome original animal instincts" (e.g., that of pugnacity) and "a disease of civilisation, a mania which has accompanied material progress," and denies that the second is really the outcome of the first. Whence comes this "devil that must be cast out"? Surely if we take the view that slowly the free re-orientation of very primitive animal instincts has added to the beauty, the value and the dignity of life, we must admit that the same animal tendencies may themselves be prostituted and degraded. Such a view would be more in keeping with the author's general treatment than the catastrophic explanation in terms of devils and disease. Indeed, if we keep close to the ideas of "processes extending over millions of years, of an unfinished building covered in scaffolding" and of lost ones gone before "stretching out hands of help and welcome," there seems no positive place in the terrestrial existence for really malignant diseases or spirits.

This, of course, is partially admitted in the succeeding pages. "If we realised the fullness of existence and all the love and help that awaits us . . . (we should) realise that man-made evils can be overcome by man." "Free beings can be influenced, helped, guided, but not pushed, impelled, or forced . . . even the Highest can only reach them by example, by precept, by warning, by instruction." But how does this general freedom of the individual fit with Sir Oliver's acceptance of the idea of partial incarnation of a larger self and especially with the descent into generation of spirits of higher grade than our own? "For though it may often be by compulsion that we enter on an earthly career, yet sometimes it may be entered

upon with foresight, through a desire to attain some good end, or to help struggling creatures, or to contribute an element towards the progress of mankind." This acceleration of the evolutionary process through re-incarnation does not easily agree with the notion of a "vision so far-sighted and patient that it could wait four hundred million years for the appearance of a human race upon this planet," nor does the invocation of the theory of the subliminal self as an explanation of the questionable psychological phenomena known as *déjà vu* readily fit with the placid existence of a devil of material civilisation, quite aloof from primitive animal instincts.

But we venture to think that no one can read Sir Oliver's meaning of this present life and fail to catch a new glimpse of the dignity and destiny of the race and a fresh vision of the value of individual effort and aspiration.

W. J. MACC.

**Introduction to Modern Philosophy** : by C. E. M. Joad. (The World's Manuals, Oxford University Press. 112 pp. 2s. 6d. net.)

**Greek Philosophy** : by M. E. J. Taylor, M.A. (The World's Manuals. Oxford University Press. 143 pp. 2s. 6d. net.)

The design of this excellent series of introductory manuals is to give the serious student of a subject an idea of its main landmarks and also to present the general reader with a simple yet authoritative and scholarly account of its human bearings and interests. The first of the two volumes above noted, although admirably clear and interesting, will, however, scarcely realise its avowed aim of "describing the views of modern philosophers in language which will be intelligible to ordinary persons." Perhaps such a task is too great to attempt in a hundred pages, and an author has to be ruthless in his selection, and explicit—to the point of dogmatism—in his exposition. A hint is given of the type of reader that the author has in mind when he tells us that his reason for excluding the English Idealists is that their work is already familiar to all English readers who are interested in philosophy. To such readers this book will appeal, for it focusses the essential points of writers like Russell, Croce, Gentile, William James, and Bergson, and shows their relation to the main streams of current philosophical thought. The chapter on Pragmatism is a model of succinct exposition and criticism which might have come earlier in the book. Perhaps the matter of the introductory pages is not very happily chosen. It is not a good policy to over-emphasize both in the introduction and the opening pages of a first chapter the difficulties of a writer's task, and it is doubtful whether the presentation of the negative agreement of modern doctrines of realism—"a common antipathy to idealism"—is the best method of introducing a philosophical subject to the general reader. In any case, it does not seem necessary to remind him of it four times in an opening statement.

The second book keeps well in view the "need of a class of readers who have not hitherto received much consideration—men and women of average education who wish to know something about the aims of the Greek Philosophers and the substance of their teaching, but are repelled by the length and difficulty of larger and more learned works." It is a "labour of love" for which many readers will be grateful, but more particularly junior students of education who wish to grasp the spirit of the Socratic, Platonic, or Aristotelian views of life. A very considerable part of the book is devoted to educational topics. In a few passages it would not be clear—at least to some readers—whether certain statements are critical or expository of the views of the writer under consideration. Thus "He (Socrates) differed from them (the Sophists) fundamentally in his view of education and in his attitude to truth and knowledge. Education is generally agreed to be a preparation for life; but different views of life lead to different theories as to the preparation required" (p. 59). In other places, the author's views—or prejudices—with regard to the "necessary or permanent" feature of a writer's theory are too much in evidence. It is surely questionable whether "strenuous intellectual discipline" (p. 107) fairly expresses the fundamental notion of Plato's "conversion" of the soul, and even if it is implied it is never so glaringly prominent as in the critic's note: "A strong case might be made out for giving to classical studies in modern education the place which Plato assigns to mathematics!" (p. 107). But, in general, the views of the Greek thinkers are carefully, clearly and fairly related to fundamental human problems and an honest attempt is made to emphasize what is essential, permanent and valuable in their contributions.

To both volumes is appended a carefully selected list of books for further reading; the second has also a useful, if incomplete, index.

W. J. MACC.

**History and its Place in Education** : by Professor J. J. Findlay. (London University Press.)

One of Professor Findlay's colleagues has recently told the public how greatly the study and teaching of history have advanced during the last half-century ; how the subject itself has broadened, and the methods have changed out of all recognition.<sup>1</sup> But great as the achievement has been, very much remains to be done. It is hard for anyone but a specialist to keep pace with the growth and re-interpretation of this subject. It is equally hard for the specialist, fresh from a college training, to apply his newly acquired knowledge to the minds of children, and to turn such of the *arcana* as he may possess to good account. Fortunately something is being done to meet the needs of both these classes. The excellent pamphlet (No. 37) issued by the Board of Education gives advice in small compass on principles and practice. Miss Madeley's invaluable little book, " *History as a School of Citizenship*," is full of suggestions based on practical experience. Professor Findlay has now added an essay marked by breadth and freshness of outlook, which cannot fail to help and stimulate the teaching of history.

Although it is an essay, not a detailed guide, it deals comprehensively with the subject. There is a very good statement of the value and aim of historical teaching—in particular the importance of cultivating a sense of historical development, " a habit of viewing all phenomena in terms of the social heritage " (p. 27). It is shown how rapidly the study of history has grown, because it has received a double impetus—from the sides of demand and supply. The growing social consciousness of the public has called for more understanding of the course of events, and advancing scholarship has, not always but often, given the light that was needed.

Various chapters deal with the content of courses and the method of presenting the subject in primary, continuation and secondary schools and to adult students. In each section Professor Findlay has something to say that is worth saying. As regards small children, he maintains that history is only part of one undifferentiated subject, the humanities. There is only one satisfactory method of teaching them, a method which gives abundant scope for personal expression, in writing of prose or verse, in drawing, acting, modelling, and so on. In his treatment of the primary school he rightly admits the impossibility of planning a satisfactory course in history for children whose work is cut short when they reach the age of fourteen—an age at which they are just beginning to grasp the real lessons that history can teach.

It is painful to an examiner to read the prescription for success in examinations, given in an autobiographical passage on pp. 126-7. The method is to ignore the outsider as long as possible, then to devote a single term to a top-dressing of temporary knowledge, and the technique of producing six answers in three hours. However it is admitted that even in secondary schools there is, or may be, scope for considerable variety and enterprise. The history of agriculture, shipping, or some other industry ; local history studied for a term ; historical geography ; a series of "bridge-head" topics, of the kind made familiar by Miss Madeley—such subjects as these may be fitted in, particularly during the years following the matriculation stage.

The reader should note Professor Findlay's definition of politics. He makes the term include the whole of civilisation, " the general current of evolution in a race or people " (p. 21). Under this definition Thomas à Kempis, Michaelangelo, and Sir Isaac Newton were politicians. It would surely be better not to pretend that in dealing with them we are teaching political history. The point that is implied in this definition, a point of first rate importance, is that both schools and universities still need to give their teaching of history a wider cast. They need a truer scale of values, which will allow a proper place not only to politics, in the ordinary sense, but to all activities which have helped or hindered the development of society. Under cover of his curiously stretched definition Professor Findlay shows in every chapter that he would have historical teaching extended in this way. Width of treatment is, in fact, the most striking and welcome feature of the book.

C.G.

**Recent Essays** : edited by W. A. J. Archbold, M.A., LL.B. (Longmans, Green and Co. Pp. 271. 3s. 6d. net.)

A very representative collection of modern essays, including examples of the work of R. L. Stevenson, Galsworthy, Belloc, H. G. Wells, Arnold Bennett, W. B. Yeats, Dean Inge and G. K. Chesterton. As the reader will judge, there is no lack of variety. Brief explanatory notes are appended.

<sup>1</sup> *Daily Mail*, 2nd January, 1925. Article by Professor T. F. Tout, who has been himself one of the chief pioneers of progress.

**The English-speaking Nations : a Study in the Development of the Commonwealth Ideal.** With chapters on India and Egypt: by G. W. Morris and L. S. Wood. (Oxford : Clarendon Press. 1924. 3s. 6d. net; prize edition, 8s. 6d. net.)

This book is a piece of finished work extremely well done. Its theme is not exactly the British Empire; it includes the United States and is a little diffident about Egypt and India. The tone of the book is an enthusiastic, wide-minded, sympathetic and chastened imperialism, with a small i, less ego-centric than of yore. The treatment is mainly historical with special chapters on discovery and trade, on commerce and sea-power, and on the imperial conscience. There is a statistical appendix, a brief bibliography, a time chart and a good index. The pages bristle with interesting information; the writers and their associates command great knowledge. The Oxford Press has done its work well. The illustrations, both historical and recent, make the book most attractive.

This seems exactly the book which was wanted twenty-five years ago, which would have been useful (had it been possible) fifty years ago. To-day it should be in the school library. Where Dalton Plans operate there might be several copies in form room libraries. It would be a suitable prize book for the best essay on a visit to Wembley Exhibition. It is suitable for birthday presents at ages twelve to sixteen throughout the year. It will be praised as wholesome reading for boy scouts. It is almost too good for a regular lesson book; the mass of detail which appeals to the intelligent boy might overburden the duffer. The teacher of history and geography will value it on his own bookshelves for reference. It should be advertised in Toronto, Melbourne, and Capetown. It consecrates the past years when our islanders were adjusting their minds to wider problems.

Socialists may carp and say the book still smells a little of capitalism and imperialism. The Germans, if they ever read the pages on mandates, on missionaries, and on the freedom of the seas, may say that it reeks of hypocrisy and affords one more proof that the English are hopelessly absorbed in their empire and can never be good Europeans.

More soberly one may say that history has for its province the past, not the future. It is Old Moore's Almanac that specialises in prediction. We can verify the fact that in the past geography examination syllabuses used to specify the British Empire; more recently they have moved towards natural regions. We do not yet know how this may modify the political outlook of the rising generation. The empire has only just made contact with and done lip service to the League of Nations. The authors think that the British navy will never act under orders from Geneva; they have not considered whether it may have to answer questions at the Hague if it ever fires a shot again without permission.

It is no fault in a book to say that it has a scope, a range of deliberate limitation. The history of some aspects of the past cannot be a Baedeker to the future. The task which is now before us is that of world organisation on a basis of consent and of adapting the British Empire to something greater than itself. If only this theme could be handled as ably as the past history of "The English-Speaking Nations" we might lay the foundations of a century of hope.

H. R.

**School for John and Mary : by Elizabeth Banks.** (G. P. Putnam's Sons. 7s. 6d.) Miss Elizabeth Banks has here told an extremely interesting story in which she attacks the caste system of education in England, contrasting it with the democratic system in vogue in the colonies.

It is obvious that astute observation has been focused on Council Schools in the collection of material for the book, and there can be no doubt as to the sincerity and to the truth of many of the contentions. It is unfortunate that the writer's zeal for reform seems to have blinded her to many admirable qualities even of Educational Authorities and of public schools.

The book is unusual and striking, and in it is paid an inspiring tribute of admiration to London teachers. This tribute can be extended with equal justice to teachers all over the country. With an ever-increasing number of such men and women as are portrayed, and with an ever-increasing attention and interest from those not involved in the working of the system the deplorable conditions present in many of our schools cannot long continue.

**School Geography** : by E. J. G. Bradford (Benn, 7/6. Pp. 104).

We welcome Dr. Bradford's illuminating treatise with mixed feelings. We are delighted to have fresh guidance in a vital matter and appreciate the garnered fruit of patient investigation, the clear argument and such new suggestions as those on p. 81 (lessons on France). But we also recognise that Dr. Bradford finds much school teaching confused, barren, unconvincing and unprofitable, although "it is the school subject most intimately concerned with the actual and fundamental problems of life." It is a painful indictment. "Geographical teaching does need to be lifted out of a rut." The result of it is too often a "flimsy edifice of words not unlike a house of cards." Meaningless words are employed. "Regions have run riot." Woeful confusion and lack of classification occurs in the use of number symbols.

Yet it is to the geographer that a unique opportunity is given to equip democracy to deal with world problems. He must seek to build up a basis of knowledge that will count at the polling booth. He must deal with reality, think imperially and realise the danger consequent on the placing of political power in the hands of those unfit, by reason of ignorance and prejudice, to form sound judgments. Dr. Bradford appeals for adequate discussion of living problems, recalling Sanderson's last lecture. "Do the Chinese so deeply love rice that they want to live on very little a day?" "Do the Chinese love rice at all?" "Do they love underselling white labour?"

Stones must be turned into bread. "Geography," he writes, "is to-day suffering from the evils of scholasticism as truly as were philosophy and theology in the Middle Ages. It has a field of vision limited by text books and reflects an attitude of mind dominated by external examiners."

We hope Dr. Bradford will prescribe a remedy for the disease diagnosed. Freedom from the tight grip of examination might do much. Travel would probably do far more. A mental concept of a glacier can only be possessed by those who see them. World spaces must be traversed to be realised. Primitive peoples must be seen before their conditions of life become intelligible. In short, geography knowledge comes very slowly and must be based on experience. Books are not enough. "Browsing over a good map" is one good method. The suggestion as to map work on page 72 seems full of promise—it is along these lines that real intellectual training undoubtedly lies.

Any teacher of geography, having read Dr. Bradford's book, and all members of the Geographical Association who will doubtless avail themselves of the opportunity to secure a cheap edition, could doubtless cross his "t's" and dot his "i's." But we venture to think we must do much more than this. We must overhaul our methods. No uncertain challenge, it should resound in our educational institutions. Messrs. Ernest Benn, Ltd., in publishing "School Geography" are rendering a valued service to the teaching fraternity.

M.F.W.

**Intelligence Testing** : by Rudolf Pintner. (University of London Press. 406 pp. 7s. 6d.)

This is one of the most useful surveys that has hitherto been published of the growth and present status of the movement directed towards the discovery of sound principles of testing intelligence. Professor Pintner brings to his work a well-balanced judgment on psychological matters, an enthusiasm for the more exact study of education, and at the same time a duly critical attitude towards the multitude of mental tests. His own experience, especially with the tests devised by himself, fits him well for the work.

The book is divided into three parts: (1) Historical and Theoretical, (2) The Methods of Testing, and (3) The Results, of which we think the third is the most useful. This includes a useful survey of the results gained not only with the feeble-minded, but also with superior children. A chapter of special interest is the one upon tests at the University College stage; a significant passage showing the results of the introduction of Thorndike Intelligence Tests at Columbia University may be quoted: "From an attitude of healthy if not severe scepticism towards the use of intelligence tests for this purpose, the whole college administration came, within the space of two years, to consider the intelligence tests as an indispensable part, not only of the admission machinery, but also of the administration of the college in the Dean's Office."

Each of the chapters is followed by a very full list of references. C. W. V.

**The Soul of your Child** : Heinrich Lhotzky. Translated by Anna Barwell. (London : George Allen and Unwin. 173 pp. 3s. 6d.)

The author of this little book is quite evidently the happy possessor not only of an abounding love for children, but also of that much rarer gift, respect for their rights. Without being either scientific or profound, he offers much useful advice to parents, and even to those who expect to become parents.

The keystone of his arch is freedom. He would have the child free to live his own life, independently of his parents and their opinions. "Every child," he says, "that grows up free and independent, directly helps all human development onward in its mighty aim . . . but at the same time it directly pushes forward to its own individual goal."

The author makes an appeal for a home life free from the nervous worries of over-anxious mothers, "who in their surpassing love . . . might impede their children's liberty with fetters too tight to be borne," or "surround them with such a barrier of fear as leaves no room for any peace of mind." He tells us in this connection, with a certain dry humour, that, "Mankind of to-day have very little fear of God, but much of a draught," and recommends us to see to it that a "child learns to fear God and nothing else whatever."

Perhaps the most valuable part of his advice is his prayer to the elders to stand aside, not to force confidence or even friendship, not to exact obedience for the sake of exercising power, and above all not to harbour resentment, should they see the love for which they are crying out given in full measure to another. It is a hard saying, but as Lhotzky himself says, "the children are worth it."

The sentimentality of the language will probably rob this little book of some of its value in the eyes of the English reader, while the inconsistencies, and the sweeping and quite undemonstrable generalisations will infallibly irritate him. As an example we may take the somewhat dogmatic statement on page 149, "No mortal mind can have any real conception of God. All that has been said on this point is most certainly wrong." This is paralleled on page 63 by the following : "What parents ought not to do? Just what the majority do!" Perhaps the quarter million of Herr Lhotzky's countrymen who have read the book like this rough-shod riding, but it seldom appeals to the British public.

E. M. K.

**A Short History of Birkbeck College** : by C. Delisle Burns. (Univ. of London Press. Pp. 170. 5s. net.)

This is an interesting book for students of educational history. "The Birkbeck" is one of the survivors of that period one hundred years ago, when the artizan, often ill-equipped with the instruments of knowledge, sought to obtain a wider culture; the dissemination of mechanics' institutes was the expression of his desire, but although the passage of a single generation saw most of these establishments fade into insignificance, the Birkbeck has managed to maintain its existence until now, when it stands for a higher education of many who are unable to give full time to their studies. The story of the struggles for the maintenance of the students' rights of control and independence is outlined in this volume. Naturally in the course of a hundred years many changes must occur in policy to meet the varying demands of the times, but the Birkbeck has always demanded its place in the sun and has adapted itself to circumstances; it is hard to do full justice to the men who have worked for it; George Birkbeck helped in the early years and from time to time men such as J. N. C. White, G. M. Norris, Dr. George Armitage-Smith, King Edward VII and his brother the Duke of Albany, with others too numerous to mention, have given active support, service and patronage. Notable names stand in the list of Birkbeck students: Sidney Webb, Sir William Bull, Pett-Ridge, Annie Besant, J. Ramsay Macdonald, Sir Arthur Pinero are among them. The Birkbeck's history sheds some sidelights on other institutions, notably the City of London Polytechnic and the University, but although these offer attractive paths of divergence, the author keeps close to his thesis and shows how the college passed through its vicissitudes to its present unique position in the university. The story is told as plainly and attractively as is possible in accounts of this kind, where the difficulties are great owing to the cross currents of many other movements, and the author is to be congratulated on the excellent piece of work he has turned out.

A.P.B.

**The Bilingual Problem : A Study based upon Experiments and Observations in Wales :** by D. J. Saer, Frank Smith, and John Hughes. (Hughes and Son, Wrexham. 2s. 6d. Pp. 112.)

Although this is a small book it is certainly one of the most important and comprehensive studies of the subject hitherto published. The core of the book deals with actual investigations carried out by two of the authors, but the treatment is much wider than the mere discussion of experimental results. It includes an historical survey, a discussion of bilingualism in Secondary and Higher Education in Wales, modern movements in some bilingual countries, and a useful chapter containing some suggestions for future practice and organisation. Throughout the book the tone is balanced and moderate ; the authors are by no means enemies of the movement towards a wider appreciation of Welsh.

They give some striking figures as to the decline of bilingualism in Wales which are worth quoting :—

- “ (a) Welsh monoglots are rapidly decreasing. In twenty years they have been reduced by nearly one-half, and it may be presumed that they will soon entirely disappear.
- (b) English monoglots are rapidly increasing, and as they are outstripping the total increase in population, it is evident that English is gaining at the expense of Welsh.
- (c) In the decade 1901-1911 bilingualists increased at about the same rate as the total population, and some writers found consolation in the fact, although it was obvious that the number was maintained by accessions from the group of Welsh monoglots who were acquiring English. But this tendency shows a startling reversal in the decade 1911-1921, and the number of bilingualists has decreased in spite of the growth of population. The large increase in the number concerning whom “ no statement ” was made may be responsible for a part of this result, but it is obviously only a small factor.
- (d) Twenty years ago the Welsh-speaking and the English-speaking populations were practically two equal groups ; to-day they form about 40 and 60 per cent. of the population.”

The detailed investigations carried out partly by means of intelligence tests by Mr. Saer and Dr. Frank Smith (recorded in the *Journal of Experimental Pedagogy*, vol. vi, and the *British Journal of Psychology*, vol. 13) certainly suggest strongly, if they do not absolutely demonstrate, that many bilingual children suffer from the present mode of instruction. It has been suggested that, at the outset, the bilingual children were of a less intelligent type ; but this criticism would hardly account for the marked differences that appear in the results. We would, however, point out that the criticism may apply to tests done upon the same groups of children at different times, for the more intelligent would make more rapid strides. In spite of this possible Achilles' heel, however, we can confidently recommend this little work as an exceedingly useful, and indeed we may say as an essential book for any serious student of the subject. Useful bibliographies are appended to all chapters. The book is written throughout with remarkable clearness.

C.W.V.

**A Short History of the French Revolution :** by I. Hutchinson Humphrys. (Sidgwick and Jackson, Ltd. 240 pp. 3s. 6d.)

This summary of the history of France from 1643 to 1799, based mainly on Louis Madelin's “ French Revolution,” should prove a very useful introduction to the study of the period.

It may be pointed out, however, that the author in dealing with the years 1792 to 1794 does not stress sufficiently the psychological effect of the European war on the Parisian, and the necessity, caused by Royalists at home, for a strong dictatorship. Hence a too hasty condemnation of the “ Terror ” as the rule of “ a handful of noisy fanatics,” possessing “ the gift of the gab.” Again in writing of the execution of Marie Antoinette he does not emphasize the fact that she was an Austrian in communication with the Austrian Emperor, France's enemy.

A.L.

**The Fundamentals of Psychology** : by W. B. Pillsbury. (The Macmillan Co., New York. Pp. 589. 12s. 6d. net.)

This is a revised edition of the book first published in 1916. The chief alteration is the addition of three chapters : Individual Differences, Imagination and Dreams, Fatigue and Sleep.

The author aimed at producing a work suitable for use as a text-book by students devoting one year to the subject ; he has succeeded in producing one which is more detailed than the short text-book and smaller than standard reference handbooks. It will appeal to many who prefer definite statements to discussions on controversial topics but there is danger that the ordinary reader will not be led to adopt the scientific attitude unless the book is supplemented by careful tutorial work. A student should be warned, for instance, against accepting uncritically such a proof as "That it is heredity rather than training which accounts for the fact that the intelligence" (defined on p. 201 as native endowment) "of children from better homes is about a year higher than is that of those from poorer homes is shown from the fact that occasionally one will find a child of high intelligence in a poor household, while placing the child of unintelligent parents under the best of training will not increase his intelligence" (p. 210).

The book suffers also from a deficiency in references. Claparède and Rivers are mentioned on p. 557 in connection with theories of sleep but no reference is made either in footnote or in the list of references at the end of the chapter.

In the main the author follows the traditional order of treatment and is concerned for nearly two hundred pages with the physiology of the nervous system and the treatment of sensation.

Many, however, will not regard such omissions or inconsistencies as serious in view of the large amount of sound psychological material and principle to be found in this book.

A.E.C.

**The Relation of Wealth to Welfare** : by William A. Robson. (George Allen and Unwin. Pp. 176. 6s. net.)

In this book the author presents a view of the relation of wealth to welfare which is rapidly gaining ground. As he remarks, "Mankind is gradually coming to feel that the identification of income with welfare is illusory," though the motive on which we apparently rely for effort is just this ambition to be rich or richer.

In separate chapters the author examines Health, Art, Work and Education, as elements in welfare, and maintains that in none does increase in wealth correspond to increase in welfare, though a minimum of wealth is necessary to maintain life above the level of mere subsistence.

His views, with which we are in general agreement, as must indeed be all who realise the spiritual nature of human life, are supported by an appeal to actual facts and to the opinions of leaders in the various departments of social life.

His argument from the returns of the medical boards of the Ministry of National Service is weakened by the fact that he has apparently forgotten that those examined during the year, November, 1917, to October, 1918, represent a selected portion of the community, many of the fit men in some occupations having been previously recruited, while in others fit men had been almost universally exempted from service on the ground of being engaged on work of national importance. It is not suggested that his general conclusions would be weakened, but it is suggested that such statistics should be weighted according to the number of fit men recruited from the various occupations during the first three years of the war.

A.E.C.

**Franco-German Relations, 1871-1914** : by G. P. Gooch, D.Litt. (The Creighton Lecture for 1923. Longmans, Green and Co.)

A brochure on the events that led up to the great war by a historian of such standing as Dr. Gooch is a very welcome contribution. The author maintains that the chief cause of the war was the anxiety of France to regain Alsace and Lorraine. France regarded the Treaty of Frankfurt of 1871 as only a truce, and she set to work to restore her prosperity, build up an army and gather allies around her. From 1871 to 1914 this desire of France for *revanche* dominated and poisoned Franco-German relations and, as the author points out, this feud over Alsace-Lorraine (and indeed over the control of the whole of Rhineland) has not only survived but been intensified by the great war. Our only hope for the future, he says, is "a world-wide League of Peace."

A.L.

**Foundations of Educational Sociology** : by C. C. Peters. (Macmillan. 1924. x+447 pp. 12s.)

Part I deals with the principles of educational sociology. Adopting Professor Bagley's definition of education as the development of the socially efficient individual, the author contends that we must discover, by an exhaustive scientific analysis of society, the abilities which constitute social efficiency ; standards will be obtained by studying the characteristics of those whom our intuitive sense of "merit" tells us are the "best." In addition to this general research, he advocates investigations to find the specific abilities required by local conditions and to determine which of the objectives of education are to be assigned to the school. The abilities thus discovered will be particularised objectives for education, which becomes a "set of specific preparations for specific emergencies." Part II considers the methods of this scientific research and outlines a definite technique, while the three appendices indicate the possibilities of such research by giving the results of some investigations.

We agree that we must investigate the purposes of education, the functions of the various educational institutions, especially the school, and the means whereby "schooling" may be made most effective. But to set up ten thousand specific objectives for education would simply confuse. In deciding the purposes of education too, it would be unsafe to trust an intuitive sense of "merit," even if we possessed it, while it is surely unwise to reject the ideals for society and education which philosophers have constructed. Again, although we agree that relative utility must determine the subject-matter of education, we doubt whether the author's four principles are satisfactory guides. He extends the scope of school activity unduly to "whatever needs to be done but which no other agency is adequately doing," and assigns to the church as an educational institution functions which it should not be expected to perform. But the book is suggestive and stimulating, while the problems for research and discussion and the many references for further reading which are appended to each chapter will enhance its value to students.

G. H. T.

**The Child's Mind, and the Common Branches** : by D. W. la Rue, Phil.D. (New York : Macmillan. x+479 pp. 7s. 6d.)

The theme of this book is association and its function in education. A quarter of the book is given to setting forth the nature and conditions of association, or the making of "bonds" ; the rest shows the operation of association in the various branches of school knowledge.

The chapters are prefaced by exercises which prepare the reader for the theme following, and class exercises, suggestions for further study, and a list of references for reading, conclude each chapter. The treatment of the school subjects is related particularly to the infants and junior section.

While the writer sets down straightforwardly a plain procedure for the day's teaching, giving almost a "rule of thumb," we feel the lack of something which is sensed by the spirit, which tells the teacher (at any rate one who has a vocation), what to do and say in the many differing situations of the ordinary school day. The making of "bonds" is a fundamental necessity, and there is the greatest bond of all between the teacher and pupil, consequent on sympathy, and a quick understanding. It is the insistence on this bond with its call to the spirit which is lacking, and as this is the heart of all teaching, it seems a grave defect.

The problems and popular examples will probably be of practical help to the beginner in schoolroom practice.

W. A. B.

**Spiritual Regeneration as the Basis of World Reconstruction** : by Thos. Barlass, F.S.I. (Manchester : John Heywood. 3s. 6d. ; post free, 3s. 9d.)

Spiritual regeneration is to be sought by meditation (not experimental psychology) as the means to self-knowledge and the reality within. Work also is praised, more than wages. "What shall it profit a man if he gain the whole world and lose his own soul" is the thesis of some ninety pages. The author thinks in the abstract, but does not use concrete illustrations to make his meaning clear to the reader. World Reconstruction is not yet brought into contact either with Dr. A. H. Fried's "Europäische Wiederherstellung," or with the Friends' Council for International Service.

H. R.

**The Beautiful** : by Henry Ritgers Marshall. (Macmillan. Pp. 328. 15s.)

In this book the author, best known as the writer of "Pain, Pleasure and Aesthetics," has expanded his view of aesthetics, more briefly given in his book on aesthetic principles. He remains an uncompromising hedonist in aesthetics and expounds his views with remarkable clearness and force combined with moderation.

He first shows the difficulty of obtaining an objective criterion of beauty by an examination of the characteristics of objects which we call beautiful. For one thing different people call different things beautiful and the cultured experts do not differ less than the rabble. An examination of various theories of beauty reveals their inadequacy when applied over a wide variety of types of beauty. The author, definitely adopting a psychological attitude, looks for the secret in accordance with the general trend of modern aesthetics in the type of experience. A further examination of suggested marks of aesthetic experience leaves him with the feeling of pleasure as the only universal mark. Yet obviously not all pleasure is aesthetic, so a further limiting mark is needed; and this he finds in the conception of stability. The sense of beauty consists of "a relatively stable, or real, pleasure field" (p. 64). One type of such a stable field is provided when we have a summation of many individual stimuli, each contributing its quota to the total impression—as the varying colours in a sunset, or tones in a chord, or the idea, rhythm and sense of words in a poem.

Now it would probably be universally admitted that experiences which we feel to be certainly "aesthetic" often contain elements other than pleasure, even painful elements. If these are essential to the aesthetic experience of the moment, can we identify aesthetic experience and pleasure even with the limitations and qualifications given by Marshall? This criticism, however, would not invalidate another possible line of thought, that the pleasure is the ultimate measure of the value of the beautiful, an idea similar to that in reference to "the good" suggested by Rashdell.

In a later part of the book Marshall discusses acutely some "Applications of Aesthetic Theory" and finally passes on to more metaphysical aspects of the subject, when he gives a very trenchant criticism of Crocès theories: but he is led back to the conviction that the metaphysic of beauty must be based on psychological analysis.

A volume which thus gives us Marshall's own theory brought into relationship with those of the greatest thinkers on aesthetics must be welcomed as one of the most important recent books on aesthetics.

C.W.V.

**The Improvement of Teaching** : by George E. Freeland. (The Macmillan Co. Pp. 290. 7s. 6d. net.)

Authors of text books on the art of teaching, as Professor Bagley, who writes an introduction to this interesting and instructive book, very truly points out, have either stressed far too much the abstract principles which are supposed to underlie the teacher's work or, in the attempt to avoid this error, have plunged boldly into the intricacies of what they term "good practice." Dr. Freeland has tried to avoid both extremes first by describing the results of his investigations into the work of skilled, selected teachers and then by interpreting these efforts in the light of accepted theory. The result is a useful contribution both to the theory and to the practice of education. For one of the most difficult problems facing the teacher is how best to maintain a living and active interest in his work. He is ever in intimate contact with young, developing personalities and, unless he can meet these with a mind fresh from the dual inspiration of tradition and of reform, most of his work will be but arid conventionalism.

Dr. Freeland has faced this problem well and courageously. His chapters are admittedly incomplete, as must all work be which deals with questions of growth and especially of the relation of that growth to a society itself in a state of flux. But his conclusions will be of value to all teachers, both young and old. In his first two chapters he emphasizes the importance of further education, of "schooling, study, reading and experience in the world of affairs." Other chapters apply the results of modern psychological investigation to school work; others deal with the fundamentals of school practice. In all, however, the author never forgets that he is writing for teachers engaged in the work of teaching.

It should, in conclusion, be remarked that Dr. Freeland is discussing the work of American schools, and British readers will not need to be reminded that conditions here are, in many respects, very different. For the rest, the book is well and clearly printed with excellent illustrations, a good index and a list of books recommended by teachers as especially useful.

S.H.W.

**Measurement in Higher Education :** by B. D. Wood. (G. G. Harrap and Co., Ltd. Pp. 337. 7s. 6d. net.)

The author, assistant professor of Collegiate Educational Research in Columbia College, ably presents in this book an account of the most thoroughgoing experiments yet made in testing college students. Professor Terman contributes an introductory chapter in which he states that the purpose of "tests is not to deprive anyone of any educational opportunity for which he is fitted by ability to derive normal profit but rather to enable us to select the type of curriculum from which a given individual can profit whether he be bright or dull," and suggests that it is time for American institutions of higher education to develop serious research in this direction as well as in that of methods of testing the progress of students in mastering the subject matter of their courses.

The tests described are of two main types: the Thorndike examination as an alternative method of admission to regular college classes, and the Columbia New Type examinations in college subjects.

The Thorndike examination is used to test one of four elements, intelligence, the others being preparation, character and health, fitness in each being essential for admission, and is described as non-coachable owing to the number of sets or forms of tests used and to the character of the tests. There are at least fifteen sets of each examination, each of which involves twenty-one different types of tasks, the whole examination requiring three and a half hours for a group of from one hundred to five hundred candidates. One interesting result is that it is clear that there are large differences in the means and variabilities of the intelligence scores of students in institutions holding an equal rank in popular esteem.

The sample questions in the Columbia New Type examinations in college subjects suggest that the contents and aims of such courses in America and this country are so different that the tests would be unsuitable for use in this country though similar tests might be devised suitable to the aims and subject matter of our own courses.

The book contains many tables of statistics which suffer from over-refinement, correlations being given to three decimal places when the number of cases is as low as 35 and even to four places when  $N$  is only 97. On p. 190 the author argues that the three correlation coefficients of .605, .611 and .586 enable one to judge the relative merits of the three parts of an examination!

The book is valuable as a record of American experiments. That it should encourage further research on similar or other lines is the avowed aim of the author. We believe it will have this result.

A.E.C.

**Education and Industry :** by Henry C. Link. (Macmillan and Co. Pp. 265. 9s. net.) Dr. Link has followed up his "Employment Psychology" with a book which deals, from various points of view, with the relation between education and industry, and especially with the adaptation of education to industrial requirements; or rather with such adaptation of parts of education, for Dr. Link fully recognises the value of other aims in education.

Perhaps the topic of greatest interest to readers of this journal will be vocational guidance and industrial education. It is interesting to see an industrial psychologist like Link emphasizing the importance of desire and choice apart from mere capacity, and the necessity for further instruction as to the nature of various kinds of industrial pursuits, with a view to such choice being an intelligent one. No doubt even the varied ways he suggests will still leave open many possibilities of mistakes. But they should reduce the chances of hopeless error, such as the present system leaves probable, for it is found that in the United States seventy-four per cent. of artizans desert the occupation for which they were trained. Instruction through books, motion pictures, talks by industrial representatives, inspection of works, and even part-time or vacation work are recommended, and incidentally Link points out that use may be made of such instruction to emphasize the value of further education.

The book, however, is much wider than a treatise on vocational selection. Dr. Link's own experience enables him to look at problems from the point of view of industrial organisation, and the topics discussed include "The Vestibule School," "Trades Schools," "The Responsibility of Industry," "The Education of Foremen," "Sub-normal Workers," and "The Educational Significance of Works Councils." Though at times the treatment is such as to make it appeal more fully to American than to British readers, the book as a whole affords a most useful discussion of many pressing problems of modern education.

C.W.V.

## BOOK REVIEWS

**Education and Life** : edited by J. A. Dale, M.A. (Oxford University Press. Pp. 316. 14s. net.)

This collection of addresses forms the report of the National Conference on Education held at Toronto in 1923.

Some of the problems dealt with are peculiarly Canadian, e.g., that of securing unity of spirit in education in a land in which education is a provincial matter, which is divided by geographical barriers, and faced by the problem of bilingualism. In their treatment of these problems, however, the speakers were inspired by the conviction that education is an initiation into the fellowship which is life. This principle, as expressed in the four addresses by Sir Michael Sadler on Tradition and Freedom, Personality and Character, Education and Life, A Liberal Education and its Cost, may be taken as the keynote of the Conference.

The report contains two addresses on History, one on Geography, nine on Literature, eight on Character, in relation to Education and Life, in addition to one on the Valuation of Education by Dr. H. M. Tory, President of the University of Alberta, and one on Education and the New Era by Lord Robert Cecil.

It is unnecessary to give the names of all the speakers whose addresses have been reported, but the reader will conclude from the fact that in addition to those already mentioned, Sir Henry Newbolt, Dr. J. J. Champenois, M. Henri Hauser, Professor of Economic History in the University of Paris, and Sir Robert Baden-Powell are contributors, that he may turn to the book with confidence for the expression in diverse forms and from different points of view of the highest ideals in education and for illuminating guidance as to how these ideals may be realized.

Some of the essays read better than others, but we need to remember that they were designed to be spoken.

A.E.C.

**Humanism and Technology.** (Humphrey Milford. Pp. 91. 3s. 6d. net.)

Essays delivered as special lectures to engineering students in the University of Birmingham and Oxford at the Summer Vacation School, 1923. The contributors are : Principal C. Grant Robertson, Sir T. H. Holland, Professors C. H. Desch, F. W. Burstell, W. Cramp, and Sir Henry Fowler. They present opinions which should go far towards promoting a proper sense of proportion in the scientific education of young people. One cannot live one's life purely by a knowledge of facts of science, possibilities for development on a spiritual plan must be provided, and as our writer points out, the nation which will lead will be the one giving "its training in the broad spirit which fosters intellectual development rather than in a spirit which aims at immediate gain." Linguistic attainment and the breadth of life offered by literary and historical study are valuable desiderata ; the pursuit of technical instructions divorced from these others is the infliction of a handicap on the citizen. There are many people who feel to-day that vocational training must in reality mean more than the term implies. They cannot, however, always express exactly what they want in practice. These essays will help to crystallise their ideas and if read by others who are at present thinking in a narrow track of simple technicalism will undoubtedly make some converts to the doctrines of true education.

Professor Cramp's contribution is a particularly interesting one as it is a simple exposition of the Quantum Theory and the Theory of Relativity, now fundamental to our ideas in science, put forward in a way which prompts a feeling of reverence for the wonderful co-ordination one detects among what were at one time discreet conceptions.

A.P.B.

**Readings from the Literature of Ancient Greece in English Translations :**  
by Dora Pym. (Harrap. 341 pp. 3s. 6d.)

This, like its companion volume, "Readings from the Literature of Ancient Rome," consists of short representative passages, translated by various hands, accompanied by brief and simple introductions. Such books have in themselves small educational value ; ancient literature, if it can be studied in translation at all, cannot be studied in snippets. But as a possible means of attracting new students to Greek and stimulating the interest of beginners they merit a place in the school library. Miss Pym has done her work well. The extracts are carefully chosen, and as a rule the best available version is used. Some of the snappy headlines could, however, be dispensed with ; it is unnecessary that Nausicaa should appear as "A Princess who did the Washing," and Cyrus as "A Chip of the Old Block."

E. R. D.

**Community** : by R. W. MacIver, D.Phil. (Macmillan and Co., Ltd. Pp. 446. 15s. net.)

This is the third edition of one of the most thoughtful books on the structure of society which has appeared in the present century.

It is divided into three parts: (1) general problems of definition and interrelations of social studies; (2) an analysis of community as the world which "the spirit has made for itself"; and (3) the primary laws of the Development of Community.

The author has effectively criticised the view that all associations are merely elements of the State which he regards as a peculiarly authoritative association within the community. He holds that certain supposed statements of fact are in reality abstractions, *e.g.*, that society is more than its members, that society is an organism, that there is a social mind, and holds that what is necessary for a sound knowledge of society is that we should study society directly and not abstractions or analogies which lead to false conceptions of its nature.

Though the word education is not mentioned in the index, yet the book is full of matter which is of profound significance to those concerned with the real problems of education. In particular we may call attention to: his fundamental law that "socialisation and individualisation are the two sides of a single process" (p. 219), and to his treatment of ethics, containing a disavowal of the view that ethics is limited to some few human questions, and maintaining the position that ethical activity is not co-ordinate with economic, political or religious activity, but is revealed in every activity of life (p. 61).

The appendices on "The Mortality of Culture" criticising the view that history is a succession of cultural cycles each complete in itself, and on "The Sphere of Heredity" are valuable additions, though the second seems to be unduly condensed.

To the lecturer who endeavours to reveal to his students the place of education in society, to the thoughtful teacher who endeavours, despite the details of his own special subject, to keep before him the essentials of social life, and to all who in the turmoil of modern life seek to understand its fundamental principles, this book should appeal.

A.E.C.

**The Handling of Words** : by Vernon Lee. (The Bodley Head. Pp. 315. 8s. 6d. net.)

The fact that two reprints of this book were required within eight months of its publication may suggest to those who have not yet made its acquaintance the desirability of so doing.

To say that the author analyses the processes and describes the conditions whereby the writer of literature "evokes the reader's own experience, widened by the universal experience stored up in the very language he uses" is to omit all reference to the play of imagination and sincere intellectual effort which render these essays so attractive. She emphasizes this relation of writer to reader from many points of view, but seems to under-estimate the complementary truth that literature is creative of character in the reader and is not efficacious merely in the measure with which it awakens images and echoes latent in him.

The book undoubtedly makes its greatest appeal to those who are writers either in fact or in fancy, but it should be read by all who are concerned in the art of communication by means of words; much if not all that it contains on written communication is applicable to oral communication. If the words "teacher" and "pupil" are substituted for the words "writer" and "reader" it will be found that in reality the author has expressed truths which are of direct interest not merely to those engaged on literary work in the narrow sense of the term but to all members of the teaching profession.

A.E.C.

**Expansion of the British Empire** : W. H. Woodward. (Camb. University Press.

Pp. viii+363. 5s. net.)

The fifth edition of a book that deserves its reputation. It is laden with useful information and as a companion to a General History is to be recommended. British dominance has been attained by many means, *e.g.*, by settlement, charter, conquest, treaty, mandate, etc, and in consequence puzzling difficulties arise even for the advanced student; the work under present review clears away these difficulties and sets out the growth of empire in as clear a manner as the nature of the topic permits. The maps are good and the paragraphing does much to make the book easy to use.

**What Education has the most Worth ?** : by C. F. Thwing. (Macmillan. 1924. x+235 9s. 10s.)

The attempt to answer this question leads the author to consider educational values, conditions, methods, forces, and results. Two chapters are used to decide the type of education which is most valuable both to the individual and to the community ; it is an education at once physical, intellectual, moral, æsthetic, and religious, and will enable man to discharge his duties to the family, to the State, to society, and to the Church. Succeeding chapters treat the content of this education in the form of the subjects to be taught ; the forces that educate—teacher, newspaper, general reading, travel, and human association ; the methods to be employed—including a consideration of the “project” method—and the conditions governing this education; its results to the individual, to the community and to such institutions as the family, property, the Church and the State. There is also a chapter which discusses part-time education, the lecture system, the moving picture, and other forms of education which are not among the most valuable.

The aims assigned to education are comprehensive ; but unity of conception is lacking, and a comparison of the results of the proposed education with its purposes reveals discrepancies and inconsistencies. Further, although the subject is education in general, the treatment is evidently biased (unconsciously, perhaps) by ideas of college and university education. The evaluation of the subjects of the curriculum is not satisfactory, the value of “education by doing” is seriously underestimated, and it is implied that knowledge alone is sufficient to determine conduct and action. Exception will doubtless be taken also to a number of the statements made ; but there is much of real interest, put in a simple, convincing way. Shrewd comments abound, and, although the treatment of many of the topics is necessarily slight, it is sometimes particularly sound and suggestive, as in the case of the educative influence of travel.

G. H. T.

**Teaching, its Nature and Practice** : B. Dumville. (Univ. Tutorial Tress. Pp. vii+489. 6s. 6d. net.)

The writer takes a wide outlook in his treatment of the Principles of Education ; the ethical, moral and logical aspects of the teacher’s work receive attention and the whole is treated with a pleasing freshness which is welcome. “Teaching as causing to learn,” and “Inspirational teaching” are among the titles of chapters whose contents suggest new turns in method and rehabilitate the jaded teacher’s moribund ideals. The treatment of *heurism* is much to the point and tends to restore equilibrium between extremists in this matter ; the author discusses the psychological justifications for certain methods, *e.g.*, in teaching reading, and for some essential school routine ; nowhere does he lose touch with the idea of genetic psychology. Each chapter is provided with a set of excellent questions for revision, and these in themselves convey many useful hints to the thoughtful reader.

A.P.B.

**Problems of Belief** : by F. C. S. Schiller, M.A., D.Sc. (Hodder and Stoughton. Pp. 194. 3s. 6d. net.)

In this “little book on a big subject,” to quote the author, we are told that belief has usually occupied a No Man’s Land between psychology and logic (for questions both of origin and validity are involved). In the sequel, Dr. Schiller treats not only belief but truth as a matter of psychology—logic has little to do with the discussion. He is, of course, working out some of the implications of his humanist and pragmatist theory of knowledge. The nature of belief and different varieties of belief are surveyed prior to a discussion of the “logic” of belief, of the “will to believe,” of the relation between belief and action, between belief and survival-value, and between “truth and survival-value.”

The book is closely reasoned, and Dr. Schiller is very persuasive. No doubt he will make converts.

E.S.

**One-Act Plays of To-day** : An Anthology. Selected by J. W. Marriott. (Harrap and Co. Pp. 271. 2s. 6d.)

This volume—“the first of its kind to be published in England”—contains eleven short plays by eminent modern playwrights and suitable for performance in or out of school. They range from light comedy to fantasy, from farce to tragedy, and all but one are in prose. Addresses are given to which applications for permission to perform should be sent. A supply of interesting notes and questions is given.

**Wider Aspects of Education** : By J. H. Whitehouse and H. W. Nevinson. (Cambridge University Press. 4s. 6d. Pp. ix + 79).

This volume consists of five essays setting forth the importance of education in the promotion of World Citizenship.

At the beginning it is suggested that the League of Nations is the consummation of the whole historic process. It may become a mere piece of official machinery or an effective instrument for world co-operation and peace. It is pointed out that to teach history effectively it must be studied as a whole—this is the surest foundation for present day tasks of civilisation. It is suggested that more time should be given in our schools and universities to the problems of American history and institutions, not for the sake of a political alliance but in order to realise the resemblances and differences in our outlook and in our history, and so help to maintain the best elements of the Anglo-Saxon tradition.

Some American experiments in education are described, *e.g.*, “co-operative education”—a plan by which practice and theory are more closely united, the theory being taught in colleges and universities, while the works and plants of great engineering firms, etc., are used for practice. In the fifth essay some suggestions are made for the promotion of international education, and the book ends with a reference to some practical experiments going on in a public school. Whatever one's ideas are on the subjects discussed this book is well worth reading.

**Applied Psychology** : by Bernard C. Ewer. (New York : Macmillan and Co. 480 pp.)

This book, by the Professor of Psychology in Pomona College, “attempts to present in a readable form the principles, methods, and results of scientific psychology as applied to problems of everyday life.” In the effort to reach this desirable end the author devotes one quarter of the book to “Aims, Principles and Methods”; a quarter to “Education and Everyday Life”; a quarter to “Mind and Health”; and the remainder to “Industry and Commerce.”

Each of these broad topics is dealt with in a succession of chapters devoted to the main divisions of the subject. The writer brings to bear upon Applied Psychology a wide range of knowledge, a keen critical judgment, and withal the ability to write easily and clearly.

The book gives a useful introduction to the subject, but the general reader will need to realise that psychology is more critical and scientific in its consideration of many problems here touched upon than the author suggests.

**Measuring Devices in Composition, Spelling and Arithmetic** : by William Boyd. (G. G. Harrap and Co., Ltd. Pp. 187. 4s. 6d. net.)

This book is the outcome of several years' experience by the author as Director of the Research Committee of the Educational Institute of Scotland in connection with the problem of selecting suitable pupils at about the age of twelve for transfer from the primary schools to the secondary schools.

It is a real contribution to the literature on standard tests in school subjects and should be read by all who are concerned with the evaluation of the results of teaching in primary schools. The book is clearly written, and is not burdened with elaborate statistics, those given being simple and convincing. We are least convinced by the results of the tests in composition, though the chapter on the personal equation of the marker is illuminating. The section on spelling, with its spelling list, and its examination of the standard for the primary school, should appeal to all who are concerned with the problem of bad spelling. The section on arithmetic is also excellent.

**General Botany** : by E. N. Transeau. Edited by John W. Ritchie. (Geo. G. Harrap and Co. pp. 560. 8/6).

This is an introductory text-book for colleges and advanced classes in secondary schools to be followed by a laboratory outline. It is a by-product of an effort to give students a broad view of the subject and enable them to see its problems and to appreciate the importance of the solution of these problems.

The work is admirably planned, laboratory work, field work, and “theory” being considered and unified. Without trespassing the author touches on the subjects of horticulture, agriculture and forestry in pointing out many important uses and applications of botanical principles. The illustrations are exceptionally delightful.

**England under Henry III** : by Margaret A. Hennings. (Longmans. Pp. xiii + 251.) This book makes available many passages from a wide selection of documents, enabling the student to study this interesting reign in an enlightened way and can be used by teachers in illustration of methods of dealing with historical material. From the compilation much knowledge of the political, ecclesiastical, social and economic conditions of the 13th century may be gleaned, and although only a small section of the book is devoted specifically to social and economic questions, there is a great deal on these important aspects to be abstracted from the other sections. The extracts are from many sources, but mention may be made of the "Chronica Majora" of Matthew Paris; "Annals of Dunstable"; "Annals of Burton"; "Chronicle of Melrose"; "Flores Historiarum"; "Fœdera" of Thomas Rymer; "Royal Letters of Henry III"; "Opus Tertium" of Roger Bacon; "Patent Rolls" and "Close Rolls"; "De Adventu Fratrum Minorum"; the list is very long and great pains have obviously been taken to make the selections comprehensive.

**Elements of Educational Psychology** : by L. A. Averill. (London, Harrap and Co. 425 pp. 7s. 6d. net.)

There is a healthy attempt in many quarters to reorganise the psychology courses for teachers in training. This book should enable many making this attempt to make progress. The writer has included in it the "chief features of his own course in educational psychology for second-year students" at the Massachusetts State Normal School. He divides the book into three sections: "The Motivation of Learning," "The Learning Process," and "The Results of Learning." Interesting and useful experiments are introduced, and the book might well be in the hands of lecturers in charge of the second year courses in psychology and education in our training colleges. The lecturers concerned would give the necessary correctives here and there, e.g., the tendency towards over-simplification, but these defects are perhaps allowable in a book intended for the beginner in educational psychology.

**Getting Our Living** : by G. Fiennes and L. G. Pilkington. (G. Bell and Sons, Ltd. Pp. 149. 1s. 6d.)

"An elementary introduction to the economies of daily life," the sub-title of this excellent little book, expresses clearly its scope and purpose. In it the authors have given a brief account of some of the facts, problems and responsibilities which boys and girls have to encounter on entering industry where they meet arguments involving in many cases words and ideas with which they are unfamiliar. Used neither as a text-book nor as the subject matter of oral lessons but as a book for reading by the pupils, it should prove a welcome addition to the class readers in the top classes of elementary schools, the lower forms of secondary schools, and should prove useful with the younger pupils in evening schools. Writers of books for use by such readers should remember, however, that one of the aims of the teacher is to encourage the intelligent use of an index, and should provide one.

**The Meaning of Dreams** : Robert Graves. (Cecil Palmer. 6s. Pp. xi + 167).

This is a very easily read and interesting book by the author of "On English Poetry." In it the general principles put forward are well illustrated with examples of dreams and technical terms are very successfully avoided. The history of dream interpretation is examined and the conclusion reached is that each theory is right up to a point. Freud and Jung are described as having "got hold of a little bit of truth and tried to stretch it further than it easily would in explaining *all* dreams."

Dr. River's work is accepted as much more reliable on certain points. The book ends with a chapter on "Dreams and Poetry," in which "La Belle Dame Sans Merci," "Kubla Khan," and a poem of the author called "The Gnat" are discussed at some length.

**Measuring Intelligence** : Harlan Cameron Hines. (Geo. G. Harrap and Co. Pp. 146. 3/6.)

The purpose of this well-turned-out and attractive little book is "to present a brief resumé of the aims, principles, problems and progress of the measurement of intelligence." For a book of this size the American point of view has been admirably put, so much so that one regrets the limited extent of the survey. Another matter for regret is the lack of an index.

**The Purpose of Education** : by St. George Lane Fox Pitt. Revised Edition. (Cambridge University Press. 4s.)

There should be little doubt as to the reception of a revised edition of this small book. There is no change in the main contention, which is that modern education is often faulty in that the excessive desire to obtain tangible results of a practical nature has had the effect of obscuring its ideals and perverting its methods.

The appendix which appeared in the last two editions has been embodied in the text, and the appendix now deals with determinism, which is also touched upon in Chapter 6. In Chapter 1 " Psycho-analysis " has been dealt with more fully than in the former appendices, and a new chapter has been added dealing specifically with psychological " inversion." In this chapter the author points out the importance of being constantly on our guard against the development of harmful inversions, whether of symbols or of conventions.

**A History of the Earth** : by Hilda Finnemore. (Longmans, Green and Co. 3s. 6d.) The size and price of this little book is no measure of its value. A few chapter headings such as : " What Things are made of," " How the Earth Grew up among the Stars," " Life Comes out of the Water," " Life Settles on land and Takes to the Air," will indicate the way in which the writer traces the development of the earth from " star-dust to man."

Teachers, perhaps especially teachers of science, geography and history, will find in it not only a useful collection of interesting facts, but also useful hints from the way in which these facts are presented. Examples are given and comparisons are made which illuminate facts and theories only too often presented to children in an unnecessarily cold and dull manner.

One wonders why Miss Finnemore did not, on page 14, take as her second example hydrogen peroxide, instead of ammonia. Her " chocolate cake " illustration would then have been excellent.

**An Introduction to Teaching** : by W. C. Bagley and J. A. H. Keith. (New York : The Macmillan Company. Pp. 400. 8s. 6d. net.)

This book is the first of a series of books projected as the American Teachers' College Series. It is a general and elementary introduction to the consideration of the problems of teaching. The fact that it is written in part by W. Bagley will be sufficient guarantee that the writers have brought to its production a wide range of knowledge and a capacity to write sincerely and with discrimination. The book deals with Teaching as an Occupation ; The Materials of Education ; The Development of Mind ; The Learning Process ; The Results of Learning ; The Educational Systems of the United States ; The Necessary Qualifications of the Teacher ; and The Specific Qualifications for the particular branches of the Teaching Service.

To each chapter is added a valuable set of problems and questions, in addition to a short list of other elementary and non-technical books bearing on the subject of the chapter.

**Fundamentals of Vocational Psychology** : by C. H. Griffiths. (Macmillan and Co. Pp. 372. 12s. net.)

This book, by the Assistant Professor of Psychology at the University of Michigan, is intended primarily to serve as a text-book for classes in vocational psychology ; hence the treatment of a number of topics not peculiar to vocational selection, such as individual variability, correlation, instincts and character ; hence also the study questions and bibliography at the end of each chapter, which will be very useful in any such class.

The subject is treated in a critical manner, with due regard to the many factors involved. Our chief criticism is that it is sometimes unduly prolix, and sometimes topics are thrust in in a somewhat disjointed fashion.

**A Dictionary of Characters and Proper Names in the Works of Shakespeare** : by Francis G. Stokes. (G. G. Harrap and Co. Pp. 360. One guinea net.)

A very useful book of reference, and something more than a dictionary, for the various actions of the characters in the plays are given with appropriate references. There are also notes on the sources and dates of the plays and poems and an appendix consisting of genealogical tables.

**The Recent Development of Physical Science** : by W. C. D. Whetham. (London, John Murray. Pp. 313. 9s. net.)

Students and teachers of the physical sciences, to whom the earlier editions of this book are well known, will welcome this edition, for in it Mr. Whetham has succeeded, in his usual clear and concise way, in indicating some of the many lines along which the physical sciences are developing. The writer has rendered a real service to the student in rewriting this book with the many additions necessary through the lapse of the fifteen years since the last edition appeared.

**The Science and Art of Living** : by Leonard Williams, M.D. (Hodder and Stoughton, Ltd. 5s.)

As a guide to health and efficiency this is a stimulating book. The author is so obviously in earnest in his beliefs and backs them up in such an interesting manner with undoubted facts that few will read his book without feeling a strong inclination to give his teachings a trial in practice. Moreover, the racy style and the humorously original outlook help to produce a book in which there is not a single dull page.

**Short Stories of To-day** : An anthology. Selected by J. W. Marriott. (Harrap and Co. Pp. 294. 2s. 6d.)

This is a welcome little volume—a collection of seventeen short stories by distinguished contemporary writers. It would be impossible to make a collection which would suit all tastes, but the author succeeds in providing something for all and much for all. The notes on authors given at the beginning of each story, and the exercises at the end of the book add to the value of the volume.

**A Nineteenth Century Childhood** : by Mary MacCarthy. (William Heinemann, Ltd. Pp. 114. 6s.)

To children of the nineteenth century this attractive little book will be a help in the pleasant task of "unlocking the casket of memories and rummaging among the things put away in it," whilst to those of a later century it will give a subtle and lasting impression of an age unfamiliar to them but none the less fascinating on that account.

**The Companion Shakespeare** : Hamlet, with a commentary by George Sampson, M.A.; Coriolanus, with a commentary by M. R. Ridley, M.A. (Christophers. 1s. 4d. each, limp cloth; 1s. 8d., cloth boards.)

These two further volumes of this series follow the excellent plan devised by the late Professor J. A. Green of giving mainly a running comment on the various scenes and characters as the play develops.

# The Forum of Education

CONTINUING THE JOURNAL OF EXPERIMENTAL PEDAGOGY.

VOL. III. No. 2.

JUNE, 1925

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## BOOK REVIEWS.

## THE FORUM OF EDUCATION.

Edited by

C. W. VALENTINE, M.A., D.Phil.,

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Articles for publication and books for review should be sent to the Editor of *The Forum*, The University, Edmund Street, Birmingham. Contributors receive twenty-five copies of their articles free. Further copies can be ordered at cost price. The order should be given at the time of returning the corrected proofs.

# The Forum of Education.

Vol. III, No. 2.

June, 1925.

# An Inquiry into Specialization and Combinations of Teaching Subjects in Secondary Schools.

By STELLA BAILES.

THIS inquiry was initiated by Professor Godfrey Thomson in November, 1924, in order to learn what conditions of specialization and combinations of teaching subjects really existed in the schools studied; and what ideals on these two questions were held by the head teachers of the schools.

The following letter and form were sent to a number of secondary schools in the four Northern Counties:—

" To assist me in advising students in training as to their degree courses, I am anxious to obtain information about the relative proportion of teachers teaching one, two, or more subjects, and the combinations of subjects which are most usual.

"I should be glad, therefore, if you could fill in and return the attached form, the information on which will be used statistically only and not published in any way as referring to any particular school. If you could find time to add any remarks on the general question of combination of teaching subjects, and degree of specialization desirable, I should be still further in your debt."

The form gave columns for the teachers of the school, in which by check marks could be readily indicated which of the subjects printed down the left hand margin were taught by each teacher.

Very generous responses were obtained from a wide range of schools, varying from a small rural secondary school, the staff of which consists of the head and two assistants, to some of the largest in the North of England. We thus obtained information concerning the conditions that exist in 80 schools and relative to 1,042 teachers.

The number of teachers who are teaching 1 subject only is	....	408
"          "          "          "          "          2 subjects is	....	385
"          "          "          "          3          "          "	....	161
"          "          "          "          4          "          "	....	39
"          "          "          "          5          "          "	....	20
"          "          "          "          6          "          "	....	20
"          "          "          "          7          "          "	....	7
"          "          "          "          8          "          "	....	2
	Total	.... 1,042

## SPECIALIZATION AND COMBINATIONS OF TEACHING SUBJECTS

An analysis of the details of the first three classes gives the following results:—

### Single Subjects.

Mathematics ..	76	Handwork ..	20	Botany ..	3
French ..	65	Geography ..	19	Engineering ..	
Physical Exercises ..	44	Physics ..	16	Commercial Subjects ..	2
Music ..	34	History ..	14	Spanish ..	1
Drawing ..	32	Latin ..	12		
English ..	30	Domestic Science ..	11	Total ..	408
Chemistry ..	20	Religious Knowledge ..	6		

### Two Subjects.

English and History ..	34	Geography and Mathematics ..	13
,, R. Knowledge ..	13	,, Chemistry ..	6
,, Mathematics ..	12	,, Botany ..	4
,, Geography ..	11	,, Music ..	3
,, Music ..	4	,, R. Knowledge ..	2
,, Botany ..	2	,, Handwork ..	1
,, Physics ..	2	,, Ph. Exercises ..	1
,, Needlework ..	2	Botany and Physics ..	4
,, Chemistry ..	1	,, Chemistry ..	2
,, Drawing ..	1	,, Zoology ..	1
,, Physical Exercises ..	1	,, Mathematics ..	1
French and English ..	25	,, Agriculture Science ..	1
,, Geography ..	5	,, R. Knowledge ..	1
,, Mathematics ..	5	Chemistry and Physics ..	14
,, R. Knowledge ..	3	,, Mathematics ..	13
,, History ..	1	,, R. Knowledge ..	2
,, Music ..	1	,, Zoology ..	1
,, Needlework ..	1	,, Music ..	1
,, Physical Exercises ..	1	,, Ph. Exercises ..	1
,, Elocution ..	1	,, Handwork ..	1
Latin and English ..	26	Mathematics and Physics ..	28
,, Greek ..	13	,, R. Knowledge ..	11
,, History ..	13	,, Engineering ..	3
,, Mathematics ..	4	,, Handwork ..	3
,, R. Knowledge ..	3	,, Drawing ..	2
,, French ..	2	,, Music ..	1
,, Geography ..	2	Engineering and Handwork ..	2
,, Music ..	1	Music and Drawing ..	3
,, Drawing ..	1	,, Physical Exercises ..	1
,, Physical Exercises ..	1	Drawing and Handwork ..	11
,, Economics ..	1	,, Needlework ..	2
German and French ..	17	,, Physical Exercises ..	2
,, English ..	2	Handwork and Domestic Science ..	2
,, History ..	1	,, Needlework ..	1
,, Handwork ..	1	,, Physical Exercises ..	1
History and Geography ..	14	Ph. Exercises and Needlework ..	2
,, Mathematics ..	3	,, Dom. Science ..	1
,, R. Knowledge ..	2	,, Zoology ..	1
,, Elementary Science ..	1	Total ..	385
,, Music ..	1		

## SPECIALIZATION AND COMBINATIONS OF TEACHING SUBJECTS

### *Three Subjects.*

English, History, Geography ..	12	Latin, Drawing, R. Knowledge ..	1
"    Latin .. ..	6	"    History, Music .. ..	1
"    Mathematics ..	4	"    "    Physics .. ..	1
"    Mathematics, Chemistry	4	"    "    Greek, Ancient History ..	1
"    Physics .. ..	3	German, French, History ..	2
"    Geography ..	2	"    "    English .. ..	2
"    Handwork ..	2	"    "    Latin .. ..	1
"    Latin .. ..	2	"    "    Greek, Latin .. ..	1
R. Knowledge, Music ..	2	Mathematics, Physics, Chemistry ..	13
"    Ph. Exercises ..	2	"    Engineering, Mech. ..	
Mathematics, Physical		"    Drawing .. ..	4
"    Exercises ..	2	"    Chemistry, Geography ..	3
History, R. Knowledge ..	1	"    "    Physics, Geography ..	2
"    Ph. Exercises ..	1	"    "    Botany .. ..	2
"    Hygiene ..	1	"    Geography, Botany ..	2
Chemistry, Physics ..	1	"    Zoology, Botany ..	2
R. Knowledge, Mathematics ..	1	"    Geography, History ..	1
Music, Mathematics ..	1	"    Drawing, History ..	1
Geography, Chemistry ..	1	"    Music, History ..	1
"    R. Knowledge ..	1	"    Physical Exercises ..	
"    Music .. ..	1	"    Handwork .. ..	1
"    Drawing .. ..	1	"    Drawing .. ..	1
Latin, Ancient History ..	1	"    French .. ..	1
"    Greek .. ..	1	Chemistry, Physics, Botany ..	5
French, English, History ..	13	"    Music, Botany .. ..	1
"    Latin .. ..	4	"    "    Zoology, Physics ..	1
"    Geography, History ..	2	Geography, Chemistry, Physics ..	6
"    English, Music .. ..	1	"    "    Botany .. ..	2
"    Mathematics .. ..	1	"    Botany, Zoology, Physics ..	1
"    Geography .. ..	1	"    Physics, Engineering, Drawing ..	2
"    Chemistry .. ..	1	"    Drawing, Handwork, Music ..	6
"    R. Knowledge .. ..	1	"    "    Ph. Exercises .. ..	2
"    Music, Drawing .. ..	1	"    "    Botany .. ..	1
"    Handwork, Drawing .. ..	1	"    "    Cookery, Needlework ..	1
Latin, History, R. Knowledge ..	4	Dom. Science, R. Knowledge, Elocution .. .. ..	1
"    Mathematics .. ..	2		
"    Botany, Mathematics .. ..	2		
"    Greek, History .. ..	1		
"    Mathematics, Physics .. ..	1		
		Total .. .. ..	161

On the whole, there is probably little that is either unusual or unexpected in these conditions. They become, however, of considerable interest in the light of many criticisms which were received along with the formal returns. The outstanding results (out of 1,042 cases) are:—

<i>One Subject.</i>	<i>Two Subjects.</i>	<i>Three Subjects.</i>
Mathematics .. 76	<i>Arts</i> : English .. } 34	French .. } 13
French .. 65	History .. } 26	English .. } 13
Physical Exercises .. 44	Latin .. } 26	History .. } 13
	English .. } 25	Mathematics .. } 13
	French .. } 25	Physics .. } 13
	English .. } 28	Chemistry .. } 12
	Mathematics .. } 28	English .. } 12
	Physics .. } 28	History .. } 12
		Geography .. } 12

*Changes Desired.*—Turning now from conditions as they exist, to the replies dealing with conditions as they are desired, we find most prominently that there is a strong and widely spread feeling that specialization in the teacher's student career begins too soon and has gone too far.

The problem is particularly acute for small schools where it is usually impossible to have specialists.

“Happy is the school which gets a man with many talents—especially a small school.”

“The trouble with many of the younger mistresses coming out is that they can offer only *one* subject ; and this limits their usefulness in a small school.”

Bearing more directly on the question of specialization as it affects the small school are such criticisms as these :—

“It is possible to fill in a teacher’s whole time with English, but as that means English from the bottom to the top of the school, I am not in favour of the idea. I prefer to have two English teachers on the staff as it is more important to have breadth in English than in any other subject.

“Generally speaking, no one master should teach the whole school in that subject,” *i.e.*, the subject in which he is a specialist.

The two following extracts illustrate criticism from another angle :—

“One difficulty of specialization is that a young inexperienced teacher cannot hope to obtain a specialist post at once, and should therefore be capable of taking general work and gain experience of schools and of girls while working her way up to a specialist post.”

“I am against a man specializing until he has had about five years’ experience in teaching.”

That the absence of narrow specialization leads to a double gain—to the teacher and to the teaching of her main subject, is repeatedly stressed. The specialist Mathematics teacher comes in for most condemnation :—

“It is an exceptional person who can flourish on Mathematics or become a good teacher of it, if he has done no other advanced work. I know they often combine Physics, etc., but I should be more hopeful of making a useful human being and a good teacher out of him if he did a good deal of English and other language work with his Mathematics. Science needs some language training or something philosophical.”

“A teacher of Mathematics would be more useful (and more human sometimes !) if she could teach something else ; Geography would be a useful subject.”

In one case, the value of being able to correlate the early stages of Science with Mathematics by placing them in the hands of the same teacher is emphasized ; and a very human note is sounded in the following recommendation :—

“In elementary Latin and elementary French we have constant trouble through boys not knowing anything of English Grammar ; and it is an advantage for one man to take the lowest forms in English and in one or more foreign languages.”

It was expected that the reproach so often levelled against the specialist teacher for lack of perspective, and for over-pressure, would come in this inquiry once more ; and the expectation was fulfilled, though in no case was the charge left unqualified ; and in some was only raised in order to be crushed.

“I regard the system of specialist masters as tending to increase the pressure upon the boys ; and I have to take very firm steps to try and resist this.”

“ The weakness of specialization might be overcome partially by recognising the head and second masters as “ Deans of Faculties ” for Arts and Science sides, and thus ensuring correlation, uniformity of terminology, etc., through discussions among the masters concerned.”

“ With an efficient form mistress (which means very careful choice on the part of the head), who takes the Scripture and runs social things, there is not much to be said against specialization from the pupils’ point of view. The head has extra work in curbing their ardour, and making specialists work as a team, but the school scores.”

A link between the arguments against and for specialization, and a link that carries the explicit or implicit belief of almost all, is given in this statement from one of the most suggestive letters received :—

“ One does want people who are specialists for certain subjects, but they are often not much use if they are without knowledge, interest, or capacity in other subjects.”

Another head considers carefully the bearing of specialization on promotion :—

“ I always think it a pity that a man should do Honours French without doing Honours German ; that fact would definitely preclude him from ever being head of a Modern Language Department. The same would apply to the Latin teacher who could not teach Greek. . . . There is always room for a specialist in Latin only, in Chemistry only, in English only, and in Mathematics only on the staff of most schools, but such specialists can seldom hope to become head of the department to which their subject belongs.”

There are, however, many who express with great emphasis their views on the extreme value of specialization—in certain subjects ; and granted certain qualifying conditions, many believe that specialization makes for efficiency and for the development of a feeling of responsibility in the later stages of school work. The following extracts are representative, the first being most extreme in expression :—

“ I think the ideal arrangement is that each teacher should be a specialist in his own subject, and if the arrangement of the time-table would permit, that he should teach only that.”

“ I believe, as a general rule, that teachers should teach the subject they know best—in other words, in almost complete specialization. Sometimes one gains in the Lower School when a teacher can take two subjects, *e.g.*, English and History, but I have now been a head fourteen years, and have rarely come across teachers who can *teach well* several subjects.”

“ The degree of specialization, to my mind, depends on the subject. Classics, meaning probably Greek and Latin authors, the writing of Greek and Latin prose, History, Philosophy, Archæology, is a wide enough range for any one to grow on.”

“ Modern Languages give plenty of experience, especially as the student has to go abroad.”

“ Physical Exercises needs a specialist teacher in view of the great stress laid on remedial work.”

There is probably little real difference of opinion on the major points at issue. In general, the consensus of opinion is in favour of specialization, provided it is not of too narrow a kind. All agree that Higher Certificate and Advanced Courses need the specialist teacher, who can teach *one main* and *one (or two) good subsidiary subjects*. Whilst most stress the need for general culture and breadth of study, it is the minority who state a belief that there is still useful work for the pass graduate who can offer general form work for the Middle School. The following extracts show contrasting opinions on this point:—

“There is, I believe, no scope for the fully qualified teacher, who wishes to spread himself over what is called general work, even in the lower forms of the secondary school.”

“There is no subject which we can afford to treat as a form subject. A pass degree involving four or five subjects to degree standard is of little value for secondary teaching.”

“For Middle and Lower School work, teachers prepared to take general form work are very useful.”

“Middle and Junior School needs a staff of men capable of teaching every subject, except, perhaps, Chemistry and French, up to an elementary standard.”

One head expresses the belief that in the future Central Schools will be staffed by pass degree people, and Secondary Schools by those with honours degrees.

It is interesting to compare here the views expressed by Dr. Alexandra Fisher before a meeting during the recent Educational Conference in London.\* She regards narrow specialization as one of the most menacing of dangers, and deprecates the fetish of the honours degree. It is her belief that the pass degree should be the normal requirement for the secondary school; and that breadth of outlook, general culture and variety of interest are very precious possessions as compared with highly refined scholarship in one or two subjects.

Turning now to ideals of combinations of teaching subjects, some interesting suggestions and omissions are made. Apart from the problem of the small school, many point out the mutual gain to both subjects when a combination is made. There was, perhaps, the greatest diversity of opinion over Geography, which was desirably attached to History by many, and to Physical Science by many, but fewer. One head would like to see a new type of teacher who could offer Geography and Biology, while another would be glad to combine it with anything he could get. Apart from this, there is little to suggest that the Arts and Sciences are desired to have any closer union than a basis of general culture would give; though the statistics show that such combinations are by no means infrequent. Mathematics is the exception. It is repeatedly urged, especially by heads of girls' schools, that good teachers of Mathematics are sorely needed; and, as has already been noted, the specialist in Mathematics is, as such, condemned. Scattered throughout the letters received are evidences of the desire to broaden the sphere of the Mathematician, most popularly by means of Physics.

\* From Report in the *Schoolmaster* of January, 1925.

“ The Science man generally knows enough Mathematics to teach it up to at least Matriculation standard ; but the Mathematics man may know no Science.”

In one or two cases English is suggested as a suitable addition ; this to “ humanize ” the teacher. (Nowhere is the suggestion that the specialist Arts teacher should be, shall we say, “ broadened ” by Science.) The advisability of combining Botany with Physics and Chemistry, and *vice versa*, is a suggestion of a point of view seldom held, or, at least, seldom voiced.

On the Arts side the combination English and History holds first place in the returns, and was commended repeatedly in the letters received. The following criticism is, therefore, of considerable interest :—

“ I would *never* combine English and History. They are heavy subjects for degree work, affording very little relief to each other and involving much essay writing. For the same reason, they are bad as a teaching combination ; the type of lesson is bound to be much on the same lines, and the corrections of written work are overwhelming.”

The same head regards Latin and English as “ about the best equipment and training a teacher can have, and a thoroughly delightful combination in every way.”\* There will be probably considerable agreement with the following point of view :—

“ There is, to my mind, a great need for a specialist Scripture mistress —say an English or History specialist who has made an especial study of Scripture. Too often . . . the subject is taught by anyone not unwilling to teach it.”

Especial individual tastes and ability—in sports, dramatic work, art music—all who refer to these would gladly utilize, regarding them as relief subjects and of social value. One head asks if music cannot be taken in an English degree course—“ I mean a really good course, and music which would make the teacher capable of giving interesting lessons on musical appreciation.”†

Finally we quote in full one section of recommendations sent by the head of a rural secondary school, which are of considerable suggestiveness, and by no means limited in value to this especial type of school.

- (1) “ Every teacher should be *willing* and competent to teach the Scriptures as part of the heritage of the Christian Church and not merely as secular history.”
- (2) “ All teachers should have worked through a sound course in some branch of craftwork, such as Advanced Needlework, Leather-work, Basketry, Metal-work (embossing, etc.). This for out-of-school ‘ Hobbies Classes.’ ”

\* An Honours School in English and Latin Literature may be taken at Armstrong College ; The Durham University Calendar, p. 85, 1924-25, sets out other possible double schools.

† Music or Fine Arts may be included as a subject in the Arts (pass degree) Course at Armstrong College, and can be taken to the final degree standard. It is possible also to read for Honours in Fine Art.

- (3) "All teachers should have some knowledge of stage management and the producing of simple plays. This not from the point of view of getting up 'shows' to raise money, but because of the real educational value of dramatic work."
- (4) "All teachers should have some knowledge of music and be able to lead their forms in singing simple national and folk songs."

It is not very difficult to strike a balance among these opinions which in detail are so varying. The whole trend is undoubtedly towards *breadth in study and specialization in teaching*, such specialization to include ability to teach one or two good subsidiary subjects. Only perhaps in the case of science for lower classes is such a claim not made in the great majority of the letters received.

To pass forward from such a balance of opinion to a suggestion of policy is not so easy. Some such considerations as these (not by any means new) may be helpful :—

- (1) A pass degree is the most suitable for many University students. They are not as a rule equally attracted by all the four subjects that are pursued to final degree standard. During the year of training which follows graduation, it is usual, in the case of students at Armstrong College, for them to specialize in the teaching of their best subjects. Also the keen pass degree student may proceed to a higher degree, and so become a specialist, with academic qualification, of a particularly valuable kind. Several opinions given by head teachers seem to point to this course as the one that would most suitably meet the difficulties they raise on questions of experience.
- (2) Specialization marked by an honours degree is increasingly unlikely to be of a very narrow kind. As already noted, double honours schools exist ; in all cases, the pre-University standard is broad, and the internal standard, by means of compulsory subsidiary subjects which must be raised to a prescribed level, is broadening.
- (3) The post-graduate course of training for education students should, both on the practical and academic side, provide opportunities for widening interests and developing contacts, to Arts and Science specialists alike. Any other way of lengthening the University Course (already at least four years for education students) is not likely to meet with approval.

Within the University itself, a suggestion full of promise is to open courses of lectures to students whose attendance is optional and due to interest ; courses of general appeal would thus reach some who are at present unable to attend. This, again, is not a new suggestion ; and the plan has been in certain quarters followed with such great success that its extension is much to be desired.

# Some Social, Age and Sex Differences shown in Children's Choice of Ideals.

By EVE MACAULAY.

AN investigation of children's ideals was undertaken as part of some research into the development of the moral sense, the object being to try and ascertain the ethical ideal at different ages and in different stratas of society. Some further aspects of children's ambitions are set forth in this paper.

## I.—GENERAL LINES OF THE INVESTIGATION.

(a) Four types of schools were selected in the same town, the three elementary schools being those with a boys' and a girls' department, the two secondary those attended by substantially the same class of children, namely, lower middle-class. They will hereafter be designated by letters.

Schools A.—Boys' and Girls' in a slum district ;  
,, B.— " " " semi-slum district ;  
,, C.— " " " good artisan residential district.

,, D.—A Secondary Boys' and a Secondary Girls' School.

(b) Printed sheets were distributed on which were the following questions :—

(i) What person whom you have ever known, or of whom you have ever heard or read, would you most wish to be like ?

(ii) Give a list of reasons which make you choose this person.

(c) The children were asked to give their ages but not their names. It was hoped, by thus allaying any fears of future identification of papers, to get a real expression of opinion.

(d) All standards in each set of schools did the work on the same day and at the same time, so that discussion of the questions between the children was avoided. Care was taken to select a school period which was not devoted to or preceded by a Scripture, History, or Literature lesson. In this way the danger of suggestion was reduced as far as possible.

(e) The ages of the children ranged from 7 to 18 years, and exactly 1,600 papers were received.

## II.—CLASSIFICATION OF THE CHARACTERS CHOSEN.

The task of classifying the characters was extremely difficult, as it was felt that they must be arranged according to some particular tendency or fact which they illustrated; no easy matter when such diverse people as Mr. Lloyd George, Drake, Charlie Chaplin, Henry Ford, "Stalkey," and Steve Donoghue are chosen for exactly the same reasons.

The four main desires were found to be :—

- (1) Adventure ;
- (2) Personal achievement and self display ;
- (3) Position and wealth ;
- (4) To do good.

The types of character were therefore grouped under these headings in the following way :—

Under 1.—Soldiers and sailors. The great majority of historical characters, exclusive of monarchs, and explorers.

Under 2.—Writers, artists, musicians, politicians and actors.

Under 3.—Monarchs.

Under 4.—The Deity, Bible characters and Saints.

Two great heterogeneous masses were left: it was decided to take them as two further divisions—acquaintance ideals, and characters chosen from pure fiction. As wholes, they illustrated respectively interesting age and social differences; whilst they could later be divided under the four main headings.

Papers where callings were chosen without a character being named were classed as Miscellaneous.

The percentages of choice under these seven headings, and for all the children put together, ran thus :—

Acquaintances	....	....	....	....	28½%
Fiction	....	....	....	....	22%
Adventurous	....	....	....	....	21%
Deity	....	....	....	....	9½%
Monarchs	....	....	....	....	9%
Personal Achievement and Self-Display					4%
Miscellaneous	....	....	....	....	6%
 Total	....	....	....	....	100%

### III.—ANALYSIS OF CHARACTERS CHOSEN.

#### (a) Social Distinctions.

To ascertain if there were any marked social differences between the four types of schools, the papers were first worked over according to the schools from which they came.

It was found that the range of choice widened as the social scale ascended; thus, taking boys and girls separately, and for this comparison up to the age of 13 only, the number of separate characters, exclusive of acquaintances, given was :—

In School A.—	54	amongst	227	boys
	34	„	192	girls
„ „ B.—	82	„	219	boys
	67	„	188	girls
„ „ C.—	90	„	200	boys
	80	„	202	girls
„ „ D.—	90	„	101	boys
	77	„	176	girls

It will also be seen that boys have a wider choice than girls.

Certain sub-divisions of the characters chosen show further the widening social outlook. In the choice, for instance, of what may be called "current newspaper characters," such as politicians, international footballers, county cricketers, boxers, tennis players, and so forth, the percentage runs :—

A.	B.	C.	D.
1%	3%	5%	10%

## CHILDREN'S CHOICE OF IDEALS

The amount of general reading accomplished is shown in the rise of the number of characters chosen from fiction. (Those taken from works read in school were excluded from this calculation.)

A.	B.	C.	D.
3%	10%	13%	18%

The characters themselves showed a difference, varying from, in the lower grade schools, *Invisible Dickey Brett*, *Betty the Fifth Form Detective*, and *Martza, the Terror of the Plains*, to, in Schools D, characters chosen from Dickens, Kipling, and other well-known authors, both past and contemporary.

The choice of "cinema characters" seems to show that, apparently, the class from which most juvenile delinquents are supposed to come, and whose sins are attributed to the "pictures," is not the class which looks to the cinema for its ideals.

A.	B.	C.	D.
0%	4%	9%	3%

The drop in School D is probably accounted for by the fact that the children come from a class whose parents do not allow going out at nights; also they probably have evening home-work to do during term-time.

No other social differences were observed, and it is significant that, in each of the four boys' schools, exactly the same number, 22%, choose characters for adventurous reasons. Amongst the girls, hospital nurses—in the character of Florence Nightingale, Edith Cavell, or some nursing acquaintance—have a following of about 15% in each school.

### (b) Age and Sex Distinctions.

These can most conveniently be taken together.

For the purpose of discovering if there were any, the papers were re-arranged, those of the same age and sex in each of the four types of school being put together; to calculate the percentages, and to avoid any danger of "weighting" the results each package was shuffled and the first 100 papers taken. It is unfortunate that less than 100 each were received for the ages of 7, 14, and 15; but it is not felt that any particularly abnormal influences at work upon the writers of these papers necessitate discarding the results entirely, though they must be regarded with reservations.

The 16, 17, and 18 year old papers are so few that they can only be handled individually.

It is interesting to compare the results with those obtained in America by Earl Barnes, who undertook a similar kind of investigation in 1902 amongst several primary schools in New Jersey.\*

### *Acquaintance Ideals.*

These, as is to be expected, are chosen largely by children of 7, 8, and 9, after which they dwindle away. The figures run, boys and girls combined:—

Age .....	7	8	9	10	11	12	13	14	15
	65	59	40	32	24	17	8	2	3

\* "Studies in Education": Earl Barnes. 2nd series. 1902.

## CHILDREN'S CHOICE OF IDEALS

Girls choose more acquaintance ideals than do boys, and Barnes suggests that as the younger and undeveloped children do likewise, girls have less developed minds. In this connection though, it should be noted that in the papers received from the older children it appears, particularly amongst the boys, that there is a tendency to revert to such ideals after the age of 15. The papers are too few, however, for any definite conclusions to be drawn therefrom.

It is interesting to notice, in comparing the present figures with those of Barnes, that less children choose acquaintance ideals than did 23 years ago :—

	Boys.	Girls.
Earl Barnes' figures	30%	50%
1925	20%	37%

### *Choice of the Opposite Sex.*

Girls appear to choose men ideals more often than boys choose women, but, in both cases, in smaller numbers than Barnes found.

In presenting the present results, the figures of men chosen for attainments possible to both sexes have been given separately; these are writers, artists, and musicians.

### GIRLS CHOOSING MEN.

#### EARL BARNES' FIGURES.

Age .....	7	8	9	10	11	12	13	14	15
No. of papers .....	100	100	100	100	100	100	100	—	—
Men .....	26%	30%	31%	36%	45%	41%	40%	—	—

1925.

Age .....	7	8	9	10	11	12	13	14	15
No. of papers .....	40	100	100	100	100	100	100	60	40
Men .....	0%	7%	20%	9%	13%	17%	26%	16%	2%
Special Chs. ....	—	—	—	7%	7%	7%	6%	2%	0%
Total .....	0%	7%	20%	16%	20%	24%	32%	18%	2%

In the remaining papers from 16 years to 18 years, men ideals are very infrequently mentioned, and then for general good qualities only, so probably the drop which sets in at 14 years would continue.

### BOYS CHOOSING WOMEN.

#### EARL BARNES' FIGURES.

Age .....	7	8	9	10	11	12	13	14	15
No. of papers .....	100	100	100	100	100	100	100	—	—
Women .....	3%	7%	12%	6%	5%	2%	6%	—	—

## CHILDREN'S CHOICE OF IDEALS

1925.

Age	7	8	9	10	11	12	13	14	15
No. of papers	40	100	100	100	100	100	100	50	20
Women	8%	7%	6%	0%	1%	0%	1%	0%	0%

The single 11 years old female character is *Joan of Arc*, the 14 years old a very masculine fiction character.

*Choice of Jesus and Religious Characters.\**

Here, again, sex and age differences are both marked. Girls make the choice more frequently than boys, and there is, further, a great rise amongst girls between the ages of 13 and 16 years old. There is no commensurate rise amongst the boys at any age.

Barnes' figures are not given, as they are not very different up to the age of 13 as far as choice of the Deity is concerned, but no Bible characters or Saints are chosen by his children.

## GIRLS.

Age	7	8	9	10	11	12	13	14	15
No. of papers	40	100	100	100	100	100	100	60	40
Deity	5%	7%	6%	5%	5%	5%	4%	35%	26%
Others	0%	0%	1%	2%	3%	6%	1%	4%	3%
Total	5%	7%	7%	7%	8%	11%	5%	39%	29%

## BOYS.

Age	7	8	9	10	11	12	13	14	15
No. of papers	40	100	100	100	100	100	100	50	20
Deity	0%	3%	0%	1%	0%	3%	3%	0%	0%
Others	0%	0%	4%	0%	0%	0%	6%	0%	0%
Total	0%	3%	4%	1%	0%	3%	9%	0%	0%

With regard to the girls' table it must be noted that the 14 years old papers were drawn from all four types of schools, though nearly one-half came from School D. All the 15 years old papers came from that school, so it may be that a particularly strong religious atmosphere there accounts for the high figures. At the same time, the children giving the Deity as an ideal at these ages are distributed through five different forms, and no one form has contributed an overwhelming majority in this choice. At all lower ages in this school the percentage is practically the same as amongst the girls in Schools A, B, and C; furthermore, there is a great falling off in this choice amongst the girls over the ages of 15.

\* "Jesus" is the almost invariable choice, "God" being mentioned only three times, and then "Jesus" is obviously meant.

*Monarchs as Ideals.*

The number of children who choose a monarch as their ideal is remarkably high. There is practically no difference in the individual percentages of the four types of schools. The figures are here quoted as a preliminary to discussing the reasons later on.

## Boys.

Age	7	8	9	10	11	12	13	14	15
No. of papers	40	100	100	100	100	100	100	50	20
Monarchs	22%	22%	17%	23%	14%	13%	13%	8%	2%

## GIRLS.

Age	7	8	9	10	11	12	13	14	15
No. of papers	40	100	100	100	100	100	100	60	40
Monarchs	0%	7%	18%	17%	13%	15%	11%	0%	0%

*Adventurous Characters.*

The figures for the adventurous characters are so exactly what is to be expected that it is not felt necessary to present them in detail. They are naturally higher amongst the boys, rising to nearly 40% at the age of 11 years, after which they fall gradually. With the girls they reach a maximum of 20% at 10 years, and then fall rapidly.

## IV.—ANALYSIS OF REASONS.

As has been said, the reasons given for the choice of the various characters fall under four principal headings, in each of which can be distinguished three stages of development in the child. First, the egocentric period when the child thinks chiefly in terms of himself in a small world of immediate acquaintances ; this begins to change at about 9 or 10 to the condition of affairs when the child is more or less conscious of the world as a whole, but has not grasped the full significance of his own relations thereto. The papers from this age to about 12 years are still full of misapprehensions ; the child is self-centred, and moral principles, when they are formulated, have the appearance of being conventional. For instance, after a glowing description of Drake's piracies and fighting, you will find the statement that he was "always good and kind to his sailors." The chief characteristic of this age is a desire for power. The final stage is reached when the child chooses a character for the social services which have been done thereby.\*

It must be understood that this is only a generalization ; some children seem to develop a social sense at 10 years old, and others to remain frankly self-seeking and individualistic at 17.

These stages can best be illustrated by considering typical papers under each of the four main headings.

\* In two papers an even higher note was struck when a character was chosen, "because he always did what he thought was right" ; surely an immature way of saying "because he was always true to himself."

*Acquaintance Ideals.*

The small child chooses these very frequently and principally from amongst child friends for the sake of immediate personal possessions, such as "a toy," "a knife," "two dolls, one with shutting eyes." If a moral ideal is expressed at all it is only to enumerate specific good deeds: "she helps mother with the baby," "she doesn't cheek teacher," "he always gives us boys some of his sweets," "he never misses Sunday School."

About 12 begins the mention of more abstract qualities in the friend chosen and general principles are formulated. The ideal is most often an adult, and is chosen: "because he is willing to help everyone," "is always honest," "unselfish," "not proud." The acquaintance ideal, then, dies away until about the age of 16, when, as was said earlier, there appears to be a tendency to revive it in the few papers received from children of that age, and of 17 and 18—generally in the person of the father or mother, or of a school master or mistress. The social qualities of, and the inspiration drawn from, these people are carefully enumerated.

*Adventure.*

The development of the child here is shown in quotations from three papers, where Captain Cook is chosen. A boy of 8 wants to be like him, "because I could go in a boat"; at 11 you get the definite statement: "he had an adventurous life and saw many new countries"; at 15: "he travelled widely, did his country great service by his discoveries, and was a noble man in his treatment of the natives."

Amongst the girls you get the same growth of ideas with regard to Florence Nightingale. At 8 her principal appeal is that "she had a lamp and went to the war with it." An 11 year old girl writes: "She had adventures in the hospitals when she went to nurse the poor soldiers." At 16 she is chosen "because she was a pioneer in nursing and did a wonderful amount of good."

*Possession.*

This ideal is most strongly marked in the choice of monarchs, though it appears amongst acquaintance ideals also. Arthur, Alfred, Richard I, Elizabeth, Victoria, and George V are all chosen, and in all four types of school equally, for some such reasons as the following:—

Arthur, by little boys, "because he had a sword"; George V "because he can have pigeons." Monarchs of every period appeal to the 11 year old because they have "rich jewels," "lovely clothes," "any thing they like to eat," "horses and motors," "fine houses," "servants to wait on them," and "nothing to do." Even the adolescent, though generally mentioning the power to do good, speaks of possession, but now in the shape of "a large Empire," "an army and navy," "a vast revenue."

In this connection one is almost bound to ask: "Is there much value in trying to teach civics before adolescence is well advanced?" The writer knows that, in one certainly of the four types of schools, a great feature is made of this subject from Standard I up. Round the persons of the King and Queen are arranged lessons on their charity, their nobility and their service to the State. These are followed by "Our Member of

Parliament, and what he does for us." The lessons are skilfully and sympathetically handled, and yet it is not before Standards VI and VII that you get any other reason for choosing a monarch as an ideal than that of possession ; whilst, to the last, the local M.P. is credited with " an easy job," " good pay," and " very little to do."

It is a serious thought that we turn the majority of our young people out of school before they have sufficiently developed to grasp the ideal of social service.

### *The Choice of the Deity.*

A further question is raised in contemplating the reasons given for the choice of the Deity ; this time both with regard to the value of direct ethical teaching and the medium through which it is sought to give it.

Children of 8 years old, who are taught " Christ, the Child," choose him " because he is good to little children," " because He was always very good and loved His Mother."

After 9 comes a very great change, and Christ is chosen " because He could walk on water," " because He could do miracles," " knew everything that was going to happen beforehand," " changed water into wine," and " could go anywhere." About 12 comes almost the first mention since 9 of His goodness. " Purity," " humility," and " kindness" are given ; but in every case—there is not one exception—these qualities are preceded by such statements as " He is King of kings and Lord of lords," " He is all-powerful," " the Son of God," " He knows everything." In two papers it is said, " He could not do wrong." Contrast this with a typical 15 year old paper.

" I choose to be like Christ because He gave His life for us, and no one can do more for anyone. He could resist temptation, was good, kind, and loved His enemies. He cured the sick and never complained about the vastness of the multitude which wanted Him at all times. He returned good for evil, was humble, and had a sense of humour, which is shown in the parables."

When a moral ideal is sought between the ages of 11 and 14, and it almost never appears earlier, it is either a biblical character other than Christ, a Saint, or an acquaintance that is chosen. Is it possible that " Christ the Man " is taught too early, and does not appear as a sympathetic character ? The children do not seem to realize His humanity : " He could not do wrong," implies inability to sin rather than the will not to. The fact that his God-like qualities are chosen and His human perfection ignored seems to show that the children cannot grasp it.

Again, it is a strange thing that the Redemption is hardly referred to before 15, unless it is that children turn from the contemplation of suffering and the teaching that their sins helped to increase it.

There are, naturally, pure speculations brought about by the above-mentioned facts.

### *Transcendency Shown in Reasons.*

It will probably be contended that a merely formal and parrot-like statement of reasons for choosing different characters was obtained in this experiment ; but it must appear, from the examples cited above of the

reasons given, for wishing to be like Christ or certain monarchs, that the child selects those qualities which appeal to him and omits those which do not. Further, it is patent that the children are ready to endow their characters with attributes which were certainly never taught in school nor given in the novels from which some ideals were taken. The King as a keeper of pigeons is one example of this; Mr. Lloyd George exploring in Central Africa another. It is also noticeable that in a class where several girls chose Joan of Arc, about a week after having had a lesson on her life, she was very variously described: "jolly," "serious," "fair," "dark," "meek," "spirited" by different children. One girl of known morbid tendencies gave a long and detailed list of quite imaginary tortures inflicted on her.

Galileo is chosen by one boy, not because of his discoveries, but because "He went on in spite of being persecuted." Cecil Rhodes by another for his missionary activities alone.

### *Ideals and the Unconscious.*

It was naturally impossible to follow up many individual papers, but in one or two cases enquiries were instituted after hearing chance comments made by teachers who recognized certain writings.\*

It was found that, in every instance where boys who had chosen Robinson Crusoe could be identified, they came from crowded, noisy, quarrelsome homes. They did not give his isolation as a reason for choice, certainly; but it may be more than a coincidence that children, living in such surroundings, select this character.

Another frequent ideal was a policeman. Attention was drawn to the fact that this choice was made by a very stunted, sickly boy of 13. Investigation showed that several delicate, undersized lads had taken a similar figure. Perhaps here is a subconscious longing for stature and strength, though the consciously expressed reasons are such as "he has a whistle," "he has nothing to think about," "he gets good pay and short hours."

Sometimes the subconscious longing is nearer the surface. A little girl with tubercular tendencies gave "an apple" as her ideal, "because it is round and rosy"; and a child who shortly afterwards ran away from a strict, unsympathetic home, and was discovered making for the seacoast, chose "Nelson, because he stuck pains and died like a sailor." Perhaps an experiment in which the children were asked to give "several" people whom they would like to resemble might illustrate more clearly both the conscious and sub-conscious ambitions, tendencies, and fears.

### ADDENDUM.

Since the above paper was written the investigation has been tried with a class of adult University Students. Forty men and fifty women answered the same questions as those given to the school children. An analysis of the characters chosen follows:—

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\* No suggestion was made to the teachers in trying to follow up these papers. They were given in a bundle with several others, and the request made: "Will you tell me anything you can about these children"?

## CHILDREN'S CHOICE OF IDEALS

		<i>Women.</i>	<i>Men.</i>
Acquaintance Ideals	...	66 per cent.	26 per cent.
Divine Persons	...	4 ,,,	6 ,,,
Only qualities of character mentioned	...	6 ,,,	3 ,,,
" Myself "	...	0 ,,,	8 ,,,
Others	...	24 ,,,	57 ,,,
<b>Total</b>	...	<b>100 ,,,</b>	<b>100 ,,,</b>

The results show that certain tendencies, which the few papers of the older children seemed to indicate, appear to persist. One of these was the suggestion that the acquaintance ideal is revived as the child grows older. It was also observed that the choice of the opposite sex was less frequent amongst older girls. In a sense, this continues: 20 per cent. of the women students chose men ideals, but in only one case "because he was a man." In each other instance the reasons for choice—that is, qualities of character—did not differ in any way from similar reasons given by women students for choosing female characters.

The heading "Others" is a group consisting almost entirely of men and women who have done great social service during the last 100 years. For women and men combined the exceptions to this are 4 per cent. "fiction characters," 3 per cent. "early historical characters," and 1 per cent. "sportsmen."

It will be noted that 9 per cent. of the students did not choose any one character, but only enumerated qualities which they, personally, would like to possess.

8 per cent. of the men wished to be like no-one but themselves: they stated no reasons.

Only 5 per cent. of the papers gave "fame," "wealth," "popularity," and "prowess in sport" as reasons for choice; the remainder were all qualities of character.

## Teachers and the Development of Education.\*

BY VISCOUNT HALDANE.

I CONFESS that the very generosity of the Chairman's opening remarks in regard to myself has made me a little uneasy. Nobody can do his work properly who has as many subjects to deal with as he has attributed to me—lawyer, soldier, philosopher and educationist. These things, each of them, require a lifetime, and in days when knowledge has advanced so rapidly and when facts are so numerous and are more and more difficult to gather together, without giving a lifetime to each department, you cannot feel happy about your own position. What I can say to you, however, is two things: In the first place I have had a very pleasant life and it has never been dull—the very variety of it has kept it from that. In the second place, whatever I have learnt has been learnt in the University, not in the schools. I am devoted to the University. One is always learning when one comes in contact with the University man, and the University gives the sense of the superhuman knowledge that is required if one is to master the hidden fields of knowledge. Well, having said that, I propose to try to say something to you about the development of the teaching profession, not in a technical fashion—you do not want to hear about codes—I will avoid this unpleasant topic. What I do wish to speak to you about is how the development of education means the development of the mind of the teacher; how not only does education develop the teacher, but the teacher develops education. It is a thing that moulds you all more or less in different ways.

There is no doubt that the profession of the teacher is one which is advancing rapidly in public estimation. A few years ago, conceiving myself, probably wrongly, bound to be a missionary in the matter of education, I used to go night after night to meetings in the country and in the great cities, and address audiences in the hope of stirring them up to some little interest in education. Other people were doing the same thing, and to-day there is no necessity for doing it because the public is now warmly and keenly interested in education, and each political party is tumbling over its neighbour in order to show itself first in its advocacy of a great cause. That is very satisfactory. But although the future of education—and a great future is already dawning—and although the career of teacher presents much brighter prospects than it did a short time ago, there is a great deal still to be done. I am not talking of salaries. These will take care of themselves, or rather, they will be taken care of automatically, the higher the teacher reaches in his progress towards excellence.

The people in this country are somewhat suspicious, but inherently they are a generous people, and they take care to reward those who serve them as soon as they are satisfied that they are rendering great public services. I do not think that the teaching profession need worry on the ground of money.

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\* An Address given to the Education Department of the University of Birmingham on January 30th, 1925.

There is another danger which is apt to creep into the teaching profession, apart from anxiety about salaries. It is this: that people have the idea that the teaching profession somehow can be cultivated by the study of some particular line of views. Maybe somebody says all teaching ought to be practical, or it may be that they say it should be founded mainly upon psychology. Now these two tendencies, which are very marked to-day, illustrate a danger which teachers, I think, have to avoid. Minds vary, and teaching must vary. One kind of mind has to be trained in a particular fashion; another type of mind in quite a different fashion. And one of the great difficulties of the teacher is that he cannot stick to one principle. He cannot go along a single, particular path. He must be able to take in a variety of principles and to pursue a variety of paths. It won't do to be mechanical. It won't do to set up what are called merely practical ideas.

Materialistic ideas will appeal to a certain number of pupils in that way, but you put off quite a lot of others. Nor will it do to think that you can get all the difficulties and mysteries of the work of a teacher explained to you, if you master what is to-day called psychology, if you familiarize yourself with the nature of neurones and synapses and the various things that occur in the psychological books about education.

Psychology is a very valuable science when taken along with other outlooks, but, like all sciences, it brings a certain limitation with it in its conceptions. The mind is far too big a thing to be set out on a dissecting-table and analysed even figuratively. It is not made up of a bundle of separate activities or of separate facts.

The mind is a whole, and the essence of the mind is freedom and liberty, and, according to the proclivities of the individual, the mind may go in that direction or in another. What we can do is to develop the mind according to its kind and for what it is; and, for that reason, the teacher must be a person who is able to adapt himself and not be a man of one groove. How carefully the teacher has to see what is the kind of mind which he has to develop! And how careful he must be to avoid trying to force the mind into the wrong groove. I think we make a good deal of our teaching confused and obscure by not paying sufficient attention to the bringing out of the principle which underlies whatever it is that we are teaching.

The outlook of the teacher must be a wide one, and it must extend not only to what is intellectual, not merely to principles; but it must take account of the place in knowledge of the beautiful and the spiritual.

If these things are neglected you will produce a revulsion. We are to-day in an age when things are given an intellectual meaning more than a spiritual meaning. But those of you who care to look back to the history of the University of Oxford and read Dean Church's book on the Oxford Movement, will see that the spiritual bulked too much then as the intellectual bulks too much to-day. The mind is capable of all these activities, and, if it is properly trained, it will take account of them all, but it won't develop to its full capacity unless the spiritual and beautiful are taken into account.

Knowledge, in other words—to take the famous phrase of Plato—must be synoptical. It must look at everything, and it must never be forgotten that knowledge is an entirety, no part of which can wholly

be separated from the other. A merely scientific view is not adequate unless it takes account of the humanistic side. It was Goethe who knew this so well and preached it so firmly.

The teacher must cultivate in himself large ideas, large ideals. He must know where to find them. He must develop them in himself, otherwise, he will not be able to develop them in others. Of large ideals the best home is the University. I look forward to a time when every teacher will have had a University training.

Science and humanism come together because science in the main is concerned—not wholly but in the main—with quantity and quantitative measurement, and humanism is concerned with quality. And yet we are learning to-day in science that you cannot separate quantity from quality, and the nature of progress is, therefore, the nature of a progress which takes in quality as well as quantity. We do not progress in quality in the same fashion as we do in quantity, and yet we do progress. Only a very highly cultivated nation such as the ancient Greeks can produce the highest quality in art, in sculpture, in painting, in philosophy, in mathematics, and when they reached it in art, the great poets of those days—Æschylus, Sophocles and Euripides—and the Greek artists in the statues which they bequeathed to posterity, reached a point beyond which there is no quantitative progress because quantity did not belong to the standard. Nobody thinks of asking whether Æschylus and Plato were greater writers than Shakespeare or than Goethe, because it is said the highest the human mind can grasp in point of quality was attained in these great men. In different fashions in their different times, each attained in a way that carries with it a sense that beyond *that* it is impossible to see how human mind can get.

But in science it is different. There it is a little more like arithmetic. In science we estimate results with a balance and a measuring-rod; and, according as the balance and the measuring-rod tell us that we have got things right, we estimate progress. Even that is not wholly true. Quantity enters into biology, psychology and organic life, but so does quality.

Still, you want great conceptions, and the teacher and the student alike require these conceptions.

Our "Universe of discourse" is not wide enough to embody them. There are obviously among the animals minds which possess a "universe of discourse" which is very much more limited than ours. Even people are lacking in concepts. What we have to do is to develop the consciousness of the infinite in our teaching. We have to develop the range of concepts. We have to enlarge the "universe of discourse."

It is the work of the teacher to develop all that, and the teacher can only do it if he himself has a wide universe of discourse, and that he gets to realize better at the University than anywhere else I know. Of course, there are extraordinary people now and then who show themselves to be capable of almost any range without special teaching.

It is only by putting things in the light of principles and of great ideas that you can make them interesting. I often marvel how uninteresting teaching is sometimes made. It is the University-trained teacher who is capable of making perplexing things plain, because he can refer them back to simple first principles, and I am glad to think that the Royal

Commission which has been sitting at Oxford and Cambridge has made it quite evident that it means the University to be the place for the teacher at least as much as for anybody else.

There is a great development in the interest of the public in University education. I predict the time when we shall openly recognize that the Universities are national institutions, and will support them in a fashion in which they may not have been supported hitherto. Ideas are penetrating society at this moment. I do not see any trace of the new democracy being different in its sense of justice from the old. It cares just as much about equality, and to-day you have a Conservative Government in power which recognizes the great step on that the people of this country have taken in acquiring new ideas and is doing its best to live up to the times.

Really, the programme of Mr. Baldwin makes one feel melancholy over the programme of Mr. Gladstone, fifty years earlier. It is such an advance. That means that ideas have been penetrating the people who have this passionate sense that they must get away as far as possible from the abominations of class suppression which obtained at the time of the first Reform Act, from dwelling in slum houses, from sweated wages, and from universal ignorance ; and that they must look to obtaining freedom under conditions which will enable them to work out their own salvation. I do not see anything revolutionary at all in their attitude.

We have no reason to be in the least afraid of the people. The people have the same instincts as the people have always had. They are only dangerous when you oppress them ; but if you give them freedom and education and put large ideas before them, they will rise to them in the same passion that they have risen to more tumultuous things in the past, and you will get an equality and stability and freedom from revolutionary tendencies such as you cannot get under anything that falls short of it.

It is the teacher who has to diffuse the large ideas and give men and women the education that make all equal whether born with gold spoons in their mouths or not.

It is he who has to teach them that the end of life is not to eat turtle and drink champagne every night. Any fool can do that who has the opportunity, and it is apt to produce indigestion. He has to teach that the real aim of a happy life is the aim of life of the man who is free ; of the mind that knows how to make the most of its leisure ; and that finds communion with the great spirits who have recorded their experiences in great books which can only be opened to the mind of the person who wishes to study them, by the teacher.

That is why the teacher is becoming more and more important in the State. He must avoid materialism, and if he does he will get his reward. He will be looked on more and more as the resource of those who are interested in stability. Do not imagine that for this purpose the teacher must be a teacher in a University. On the contrary, he can perform the function I am speaking of efficiently in the village and in the village school if he only has the ideas. And the library is almost as important as the teacher himself. Think for a moment what it will mean if we can get that kind of system recognized by the public and established through the country : if we have a fine corps of teachers with the children of

people who are interested in seeing that their children get education, and with facilities for the most distinguished of the boys and girls to get to the University.

I have often thought of what we lose in this country. It is a great race that the nations have to run, and the race is to the swiftest, and swiftest means those that have the best knowledge.

The most skilled people in industry and organization is the nation that gets to the top. We depend more and more on education for the development of industry. If we want to get ahead, you have to know ahead. Our future, as a nation, depends in that fashion upon education—on the moral and spiritual, as well as the intellectual. It depends upon the permeation of our people with great ideas, and those ideas are as necessary to enable this country to hold its own among the nations of the world as they are necessary to secure progress within our own shores.

## Residential Life in the Civic Universities.

By M. K. ASHBY AND J. H. NICHOLSON.

IT is universally agreed that there can be no true University life without some form of residential life, without, that is, close contact, promoting the exchange of views, the rubbing-off of intellectual corners, the calling into the service of education and science of all the energy which is set free or generated by the active play of the social instincts. It would seem, at first sight, that residential life is more necessary for the *education* of students than for the other great aim of Universities, the promotion of knowledge. This paper will have in view almost entirely the social and moral education of students, but it ought meantime to be remembered that for the vast majority of students contact with other minds provides very much of the force with which the "attack on the unknown" is carried on, and that thus alone is the criticism brought to bear upon ideas and theories, which is necessary to ensure that they should be developed or rejected in the quickest and most economical way. Any residential life, however comely, which is not lively intellectually, is a waste of money and a missed opportunity, since this quality can be obtained with, perhaps, less expenditure than is needed to maintain a dull, comfortable, and restricted existence.

University Colleges were started to provide University education for both men and women in industrial cities. The whole life of the College centred in the college buildings where lectures were given. Some began by giving evening lectures; classes and examinations were at first considered the essentials of their existence. The idea of a residential life at these Universities did not come into being with the Colleges themselves. Soon, however, students were attracted from country districts, and it became evident that the lodgings obtainable were often not suitable, at any rate for women students. Experiments have been made in the housing of students, and now the Civic Universities provide on a considerable scale for residential life. Life in the Residential Houses is different from life in older Colleges, since no direct teaching is carried on within their walls. The form of organization which has been adopted is a response to circumstances, but it has also great positive qualities which should be accepted and developed.

Perhaps the most convenient arrangement will be to consider first the development of residential life among women students, since it was on this side that the Universities first made provision, and to postpone till later a few special points bearing upon provision for men. The fundamental aims are, of course, roughly the same in both cases. Halls or Houses of Residence are usually provided for all women students who cannot live at home or with friends, with the exception generally of a few older women. Parents are not usually very willing to allow their daughters to go into lodgings, and the Universities are still less willing that their women students should do this. Where Halls of Residence are adequate in size, there is little or no inducement to live in lodgings, as the latter are no cheaper and are often less conveniently situated and less comfortable.

The Halls of Residence are in no sense Colleges ; no lectures are given in them and any societies which may be formed in them tend to be small, private, and of less interest to most students than the University societies. The students in residence attend lectures at the University's central buildings, where they meet fellow-students, both men and women, the residents of other halls, day-students, settlement workers, and others. Nevertheless, the best of the Halls of Residence have a strong corporate life. The joint system of residence and daily attendance for lectures has the following characteristics :—

- (1) The women have institutions which are confined to their own sex, and which thus provide opportunities for the cultivation of their own more typical activities, and the development of a feminine point of view.
- (2) They have also opportunities for forming close personal friendships.
- (3) The contact with other types of students, as enumerated above, and especially with people of the other sex, provides material for wide experience, and keeps the students' life on a broad, social base.

This type of women's University life may be compared with :—

- (1) The life of Women's Colleges where there is no connection with a men's University or a mixed University, *e.g.*, the American Colleges—Brynmawr, Vassar College. It may be profitable to quote here the opinion of Professor Muirhead as representing a possible opinion on this type : “There is the Women's College or University, in which all the students are residents. The two chief rivals of this kind were Vassar and Brynmawr. They are like Girton and Newnham, and seem like them to solve the problem in the most satisfactory way. The difference is that they are practically small Universities themselves. I do not know whether you would call this an advantage or not. It has several great advantages over the Oxford and Cambridge system, but I think the advantage of being part and parcel of a great University (as far as they are this) outweighs the advantage of independence.”
- (2) Women's life in the Civic Universities may also be compared with the system of Colleges more or less independent, but forming a part of and in intimate touch with other Colleges also part of the University, *e.g.*, Oxford Women's Colleges.

While the halls of the Civic Universities are built on new needs, and the life of them must aim at interpreting very new conditions and experiences, yet they have, to some extent, been inspired by the standards and ruled by the customs of the Oxford and Cambridge Colleges. Some of the best-known Halls, *e.g.*, Clifton Hill House, Bristol, and University House, Birmingham, were started and built up by women from the Oxford Colleges. Some of them, if not all, have thus direct connection with what might be called the Women's Renaissance of the last century, and through that with the older movement for adult education (University Extension, etc.). This connection has given to their several traditions and atmosphere a social tinge and orientation which has been of great value, both in the education of individual students and also to the wider

world in turning out serious and conscientious students of society and active women citizens. This is true of most of the halls known to us, but, unfortunately, not of all. Some were set up with little thought of their educational function, chiefly as mere lodging-houses for students, with Wardens or Superintendents, whose chief qualifications were domestic. On these it is a slow and difficult task to superimpose new ideals.

The following summary of the aims of the Halls of Residence is probably not adequate, but will be generally accepted as correct so far as it goes :—

- (a) To provide suitable homes for students.
- (b) To give a training in group life.
- (c) To provide suitable recreation.
- (d) To stimulate thought and enthusiasm for learning ; to enable students to mix with people studying subjects other than their own and to learn something of the line of approach to these subjects.
- (e) To promote intelligent and active interest in public affairs ; and
- (f) Finally, to make students aware of the organization, the personal qualities, and of the material conditions which are the foundation of happy, lively, and dignified social life.

We may now summarize and, as far as possible generalize, upon the material conditions of the Halls of Residence, beginning with finance :—

The main source of income for all Halls is fees. In Women's Halls these range from £54 to 70 guineas. Their variation does not depend as might be supposed upon the quality of the accommodation offered. Halls of poor equipment charge students as much as others. In the same Hall fees vary with accommodation. A few Halls have cubicles, double study-bedrooms, and single study-bedrooms, and in these the fees vary to about the extent of £10, according to the room occupied. The fees in men's Halls are on the whole slightly higher, but accommodation is better in that it is less usual for more than two students to share a room. Very few Halls are quite self-supporting, and it is doubtful if they can be if they offer all the amenities of a good College life. Larger halls have a financial advantage over smaller ones. High fees are impossible since the students could not afford them. The difficulties of war-time finance lowered the standard of comfort in University Halls, and it is important that the pre-war standard should be recovered if the objects of residence are to be obtained. It is the generally accepted rule that a Hall charging normal fees can pay its way if it has some relief in respect of rent. A number hold their premises free through gifts of houses and land, *e.g.*, Ashburne Hall, Manchester, Mortimer House and Clifton Hill House, Clifton. Some have been built by friends of the University (University House, Birmingham). It was formerly possible to get a Government grant for building by taking a certain proportion of students in training for the teaching profession, but that is not the case at present.

Many Halls are very poorly equipped. Old private houses adapted or unadapted are in use, and these are expensive in upkeep and have the effect of making some petty restrictions necessary. No escape from these seems possible for the present unless private benefactions are forthcoming. The ideal Hall is a simple matter, but, like most other forms of simplicity, is very costly. One well-equipped Hall gives each student a study-bedroom,

has a bathroom to every five students, an endowed library, a music room with double doors (an amenity which is almost a necessity), a billiard room, pantries with wash-house and ironing boards, etc., for students, a dining room and common room which can be thrown into one, of which the common room is arranged so that a stage is easily erected at one end, and has convenient doors for entry and exit. A very practical addition to this excellent building would be a room where Badminton and other games could be played indoors. The scheme of this house sounds elaborate, perhaps, but some amenities depend only on the proper lighting of cellars! That a good foundation for Hall life such as this is not necessarily very expensive in upkeep is proved by the fact that before the war students of this hall paid fees ranging from 40 guineas to 50 guineas per year, most paying 45 guineas, with no extra charge except 15s. per week for extra residence, although there is no endowment except that the building is rent free, and the library has a small income of its own. This Hall is now charging 70 guineas as compared with £63 paid by students where there are no study-bedrooms, no grounds, no really large rooms, no music or billiard room, and a very meagre supply of baths. The economical running of halls depends largely upon the following conditions:—

A building well thought out from the domestic point of view, and the number of students being sufficient to prevent the salaries of the more highly paid members of the staff from constituting a high percentage of the charges to students, and to make the purchase of food, etc., cheaper than in a small house.

On the first of these points the question arises whether it is better to have a new building, or, as is often done, to adapt an old house. In this connection the new building undoubtedly has the advantage, as it does also in the possibility of conveniently affording rooms for students' purposes. But, on the other hand, where an old house with the beauty and associations of, say, Clifton Hill House, Bristol, has been adapted, the æsthetic satisfaction residents get from it may compensate for lack of extreme convenience. The writers, however, feel that the only vital associations for a Hall are those of its own history and that genuine convenience and safety can almost never be obtained in an adapted private house.

The opportunities for games in Halls is an important matter. The provision of grounds varies very much. As a general rule it would seem that the reasonable standard to take would be that for a Hall of from 75-100 students, there should be a room for indoor recreation, four or five tennis courts, and a hard court for netball or tennis. In the case of men's Halls, the provision of some kind of practice ground for cricket, football, or hockey would be a distinct advantage.

The provision of Residential Houses has a direct bearing on the standard of University athletics. While Hall teams and societies should never overshadow or compete with University activities, they should aim definitely at providing both a training ground for University teams and societies, and a field from which these teams could be chosen. It is, perhaps, not an over-statement to say that the wide gap between the standard of athletic achievement in the older and newer Universities respectively is due less to the fact that fewer students of the latter have been at residential schools than to the inadequacy of the arrangements

in some of the newer Universities for the selection and training of athletic talent.

Students should not, of course, be tempted to hold back from joining in the University sports, and this applies especially to team games. In one of her American speeches Miss Rose Sidgwick quoted a saying that a "liberal education is one with plenty of grass in it." The initiate will understand this statement. We may remind others that most of the provincial Universities are situated in industrial cities.

The most important matter of all in discussing Hall residence is that of the kind of life to be lived by students, and the means to be taken to bring about that life. The very constitution of a Hall is, some would say first, to the end of a scholarly life. But this would be hard on the majority of our students, most of whom are certainly not by nature "scholars" in the narrowest sense of the term; nor do we think that most of the founders and administrators of Halls would wish their main aim to be the production of scholars, but rather of happy and well-developed people who will be able to pass on some account of the good life, and of the means of attaining it, partly through strenuous and even scholarly University studies, and partly through a fully conscious communal life.

That the students' life should be largely self-governed is more than a platitude. Nevertheless, in a good proportion of existing Halls there is in practice remarkably little determination of the type of corporate life by the students, and in some there is very considerable delimitation of the lives of individuals. This happens for two reasons: First, because it is very difficult to say what degree of self-government both individual and communal is good, and because if a Warden is left with any real functions of government at all, the giving of freedom is not the mere giving or accepting of a constitution, but the constant exercise of a firm, shrewd and sympathetic personality. The degree of collective self-government to be given in a Hall is limited on the one hand by the fact that the Hall has positive educational functions. We may make this clearer by comparing it with the Students' Union or Clubs. The club is generally recognized as the students' own place, where they arrange matters entirely for their own convenience in their own way as they do also in University societies. Here, for example, they manage even their own domestic affairs. They fix their own subscriptions and are genuinely cognizant of what are the means at their disposal. If it were good that they should manage their own halls in this way then we should have American "chummeries" and "dormitories"; the Hall of Residence, as we know it, would go out of existence. But the Hall has positive functions, those of actively introducing students to modes of thought, to movements, to æsthetic standards, to notable personalities, to such manners and customs as are not provincial, but on the contrary give them a passport to all sorts of society, both up and down the social scale, in a way that no family circle can do. Thus the Warden must very definitely determine and constantly modify many of the conditions of life in the Hall. But his doing so will seldom appear as a limitation, and nearly always as the opening of doors to a wider and more thrilling life if his own eyes are on the positive aspect of his functions, and if he asks only for a general acceptance and appreciation of his work, and does not exact it always of all individuals. His method in most matters will be that of the suggestion which is

independent of the spoken word, especially if he has the support of resident members of the University staff. If he is alone with his students he may sometimes have to discuss with them his standard of residential life and to forego those parts of it which he cannot get them to understand or to agree to. If he is thus alone he must not be too ambitious or he will suffer a disappointment. Where a Hall is really fulfilling its functions of broadening the lives of students the latter will usually see quite clearly that complete student government would rob them of the very things that the more ambitious and responsive of them are most anxious to get from College life. It will be perfectly clear, also, that if (as is so necessary now) the house is to be conducted in a domestically economical way students must have very high personal standards, and where these are absent, must accept reasonable regulations for the prevention of waste of food and light, etc., and damage to property. It will be obvious, also, or very easily pointed out, that any proceeding affecting the finances of the hall must be submitted to the representative of those responsible for financial matters ; and that the regulations of the house must always be such as to allow of its affording the maximum opportunities for study. Thus one tries to indicate the permanent necessary limits of student government. There are at present in many Halls other limits which ought not to be permanent, to which we shall return.

There is, however, a measure of self-government which is what one might call a "common factor" in Halls. Students have periodical gatherings in which they express their views—a junior common room or a house meeting, and rules under which they elect their head, and other officers ; and these are usually responsible for the general discipline of the house. Such self-government is fore-ordained by the authorities in many cases, one prospectus describing the students' duty and responsibility as follows: "Members of the Hall are encouraged to take an active part in various social and educational activities of the University, and also to maintain for themselves the necessary discipline within the Hall." They are thus enabled to join width of experience and a sense of responsibility which should be of value to them in later life." The extent to which students really maintain discipline for themselves depends, of course, on how far they and the Warden have common aims, and it will be the function of the Warden to make students "cognizant of the objects for which the University" and the Hall exist. To a very great extent the students' aims always are similar to those of the Warden, and many matters of discipline will never come before him.

The functions of government being divided between students and Warden, the senior student is a most important person. He is almost always chosen by students without any reference to the Warden, and if the students' choice is to be exercised with full responsibility it must be unhampered. The decisions of the students' meeting will also be quite free, as long as they are constitutional. As a matter of fact, in many new Halls the Warden finds himself pressing on students a greater measure of self-government—the details of organization are in themselves more important than appears from outside. In a very real sense each Hall must work out its own constitution and must be prepared to adapt it as it proceeds, but exchanges of views and experiences between the Wardens would be of value. A meeting of women's Wardens to this end was held

in Manchester in 1923. The training in such details of public business as committee routine, the drawing up of balance sheets, etc., is of great value, and can best be taught by a method of suggestion which will not infringe the self-respect and autonomy of the students.

Women's Halls frequently give rather less personal freedom to students than the men's institutions, on account of the pressure which parents are supposed to put upon the guardians of the women. There is, of course, a real difference between conditions of life for men and women on which this pressure is or might be based. The women's health, for example, must be looked to more. But practice varies greatly, largely, perhaps, according to the kind of homes that students are drawn from, *e.g.*, it is arguable that young students hailing from villages and small country towns must at first live a regimented life when they come to a town. But where restrictions are imposed, however sympathetically, the responsible majority suffer for the irresponsible few. The exhilaration of independence is lost and the full flavour of good College life is not obtained. It should be clear that while the Warden's best advice is always at the service of students, he cannot be responsible for the details of a student's movements.

Serious questions of discipline practically never arise when all the residents of a hall are students by their own free will. But occasionally a strange spirit arrives pressed by parents to the wrong profession, or enamoured of the "good time" College life is reputed to give, and very, very rarely—real trouble arises. Where there is no compulsion to reside in a Hall, such a matter is best settled by advising such a student to cease to be in residence, or to try some other Hall. The interest of this matter is in the point that the committee of the Hall should see to it that no element of restriction and still less of petty exhortation is brought into the life of the Hall through such a resident. To sum up, one might quote two views as to the degree of freedom due to obtain in a Hall: one, that there ought not to be less restriction than in an average middle-class family, and the other that there ought not to be more. Of these, the latter is the better rule, but it ought to be carried further. A University institution to maintain the idea of University life must treat its members as responsible people, and parents must consider the matter in this light and not send their sons and daughters while they are too young, or with their share in their education undischarged.

The qualifications of a Warden will be deducible from what has already been written. Strictly academic qualifications are not regarded by the wardens themselves as their most useful asset. Wide interests, culture and some social gifts are, however, a necessity, if they are to give their institutions real University rank. Some say a degree is necessary, not in itself, but as involving a training and experience similar to that which students are undergoing. Some residential experience as a student is almost essential. One correspondent sums up the qualification of a Warden as being "common sense, wide interests, love of liberty, and good nerves." The necessity for the last should not be overlooked. Those who have tried the work know that the responsibility involved is of a most trying kind, or, rather, is of numerous kinds. Perhaps the most difficult thing a Warden has to do is to hit the happy mean, the need to suggest a standard of life and manners, and to provide help and supervision to

students, while leaving his students to find their way about—mentally and morally—for themselves, as far as they are capable of doing so, without undue risk to themselves. As in other professions, the only really competent person is an archangel—to be all things to all men and yet to make each person steadily more independent of himself.

The position of Wardens as members of the staffs of Universities appears to vary a good deal, and to be somewhat unsatisfactory. Salaries are not high, ranging from £120 in small Halls, to £400, or thereabout. A great many Wardens are paid about £150. Of course, the value of their board and lodging has to be added to this, but when this is done, the payment is still small, while the Warden's duties emphatically include a good deal of entertainment. The power on occasions to do things for students which involve expenditure is essential almost to a person who takes an interest in them individually. No provision is usually made for Wardens in the University's Pensions Scheme. This is a much more serious matter than the rate of pay.

As for the official connection of the Wardens with the rest of the staff, being reckoned neither as administrative nor as academic employees, they fall between two stools. In a few cases Wardens are full members of the A.U.T. (Birmingham, King's College), but not as yet generally. In answer to questions, Wardens think they should be allowed to become members of the A.U.T. An alternative plan would be for Wardens to have an association of their own, which for our part we think they will be forced to do, if they are not included in the pensions scheme, and if the A.U.T. does not bring them into its fold. Most Wardens, however, appear to think that informal communications between them are preferable, if their status and pay have other safeguards. Everyone would agree that if Halls are to be educational institutions of University rank, there must be the closest association between Wardens and the academic staff, properly so-called.

Of course, if Wardens lecture in the University this difficulty does not arise. But comparatively few women Wardens do lecture, and where a Hall is large a Warden is fully employed with her primary work. If she has spare energy, it is probably better for the life of the house that she should spend it in achieving a good many kinds of contact with the outside world than in severely academic work like lecturing. The case is different for women than for men, since most women Wardens do more of their own housekeeping and secretarial work than men.

An amusing answer to a question circulated on the best size for a Hall was: "There is no mystic number" (see Aristotle's remarks on the size of a city). Several, however, say that a hall is best when housing 75-100 residents, and it is generally agreed that there should not be less than 40 students for many reasons. Perhaps the chief is that every Warden requires some help if he is ever to cease to be on duty and get real refreshment.

It is generally agreed, also, that the Hall should have room, not only for students, but also for members of the academic staff who wish to be in residence, or for other suitable mature people. The presence of a "senior common room," the members of which are interested in the students and the Hall, adds enormously to the life of the institution.

In some cases more could be done to get diversity of students even where the constitution of the Hall sets very definite limitations. The Warden should select his own students, and should make definite efforts to get a varied house. Where there are several Halls there might be mutual arrangements. The equipment and standard of comfort of a Hall should include all essentials, so that it may appeal to representatives of well-to-do homes. Most important of all, perhaps, is the attitude of prospective students towards life in a Hall. As a counsel of perfection it is desirable that compulsion to reside should be avoided as long as Halls are the exception and not the rule. The ideal is certainly that life in a Hall should be the normal course ; until that course is possible Hall life should be made quite obviously superior in its attractiveness to life in lodgings. There should be definite efforts to make the Hall known outside its own district so that students may not all be drawn from one area. The Old Students' Association will generally be a good means to this end ; and the establishment of fellowships and scholarships is, perhaps, still more important. A few Halls used to take in students from Art Schools and other educational institutions of a rank similar to that of the University, and these have been of the greatest possible use in extending, as it were, the mental and temperamental atmosphere of the Hall, but at present there are no vacant places for these, and there is the possibility that such non-University residents may not contribute much to the corporate life, if they cannot usually be in at ordinary times for meals, house meetings, etc.

Most important of all, a Hall should bring students into touch with the teaching staff of the University. The residential staff should make friends among them and the house should entertain them. It should also offer accommodation to some of them. Women's Halls are fortunate in that it is easier for them to have a numerically strong "senior common room" than for men's, since most men lecturers have their own houses. The main difficulty in accommodating members of the staff is that of space. They naturally wish for two rooms, and these cannot usually be spared. Where a new building is put up, it is desirable to plan for some studies with bedrooms attached. Even this provision does not, perhaps, give too much comfort and privacy, but only those members of staff will wish to live in a Hall who find compensation and joy in corporate life and the youthful activities of students.

## Technique and Contacts. A Reply to Principal Barker.

BY J. J. FINDLAY.

THE basis of Principal Barker's address, published in the last number of the FORUM, is found in his distinction between What to teach and How. He goes back, in effect, to the old days when Lancaster and Bell stuffed their monitors with a little " substance of knowledge " (p. 15) overnight, to be " imparted " by " a method of presentation " which he labels " technique." He does not propose to revert to those bad old days, but he works on the same principle, for it provides him with a classification of teachers and schools on which he can arrange a most ingenious chessboard, every man in his position. Thus, let  $S$  represent the substance of knowledge,  $T$  the technique, and 100 the maximum to be distributed, then :—

The Secondary Teacher (Upper Forms only, please !) requires	....	....	....	80 to $100S + 20$ to $0T$ .
The Central Teacher (probably)	....	....	....	$60S + 40T$ .
The Elementary Teacher	....	....	....	20 to $30S + 80$ to $70T$ .

With these postulates we can arrange functions and relations for schools, training college, and universities. We can, for example, plan that the aspirant for elementary teaching shall spend one year only in a secondary school (what, by the bye, will head masters and head mistresses say to this move ?); we can send to our training colleges honours graduates to pursue fourth year technique side by side with raw youths of twenty years of age who are acquiring only 20 per cent. of " substance." We can develop any number of " contacts " and committees in which every one—pawns, bishops, and even queens—would consult and interchange and connect without end.

But supposing we do not accept the postulates ? There is a story somewhere of a player who laid out a chessboard and invited a neighbour to play, according to the rules. But the neighbour was a rude fellow who first kicked the chessboard over and then drew his sword, to play a livelier game.

Now at the risk of appearing violent (though I am, indeed, the gentlest of players in these games !), I decline entirely to accept this arrangement of pieces and relative values. I cannot accept " the background " Dr. Barker sets, and must, therefore, disperse his actors (p. 16). His theory postulates a sharp division between " the substance of knowledge " and something he calls technique. Now the act of learning can certainly be distinguished from the act of teaching, but the distinction, instead of being adopted as the leading principle in training, is of minor importance ; if accepted as a basis for organization it is fatal to progress.

The only sound line of distinction between types of teacher (elementary, secondary, and the rest) will appear in a moment ; before we can make it, we must get the foundation principle clear. Is this " substance of knowledge " an ingredient that can be supplied, in diminished doses, to a primary teacher and in ample flow to his more

fortunate brethren, divided into "subjects," small scraps to be digested for a certificate examination, and larger portions swallowed for an honours degree? I reject the whole structure, and go back to an earlier conception of college curricula, which certainly prevailed in Oxford at a period before Principal Barker was a college tutor: but it has, perhaps, been abandoned in that magnificent "home of lost causes." The old term for this conception was "liberal education;" re-shaped to fit our new conditions, we may describe the supreme function of the training college as *fostering a passion for learning*: I care not whether the student be in category one, two, three, or four, the one thing needful is to turn him out, at the end of his "years," a life-long student, a learner developing all his life. Emphatically, I will not distinguish between the most gifted honours man and the humblest of infant school teachers, and in this refusal I am confident that the great bulk of training college lecturers will concur. One of the most illustrious of our craft, John Dewey, put the case very strongly: "Really, to interpret the child's present crude impulses in counting, measuring, and arranging things in rhythmic series involves mathematical scholarship. . . . The entire science of physics is none too much to interpret adequately,"\* etc.

I wish to be entirely respectful to Principal Barker, for whose gifts, both as a scholar and a tutor, I have high regard, but I would have him acknowledge that he has not acquainted himself with the trend of progress in this field: he stands where schoolmasters stood in the 'eighties when I first began to feel my way into the problem of training.

But, surely, he may reply, you will acknowledge some difference in culture between the teacher of young children and the teachers of a sixth form? Alas, we must admit it, for all teachers have not the same talent, nor the same opportunities in upbringing or environment; and the weaker sort (at 18 years of age) are only allowed two years instead of four to make up for their initial disadvantages. But am I, because of these initial disadvantages, to split up the teaching body into permanent classes, some destined always to teach the little ones, some reserved for the sixth form? Far more space is needed than a discussion column can afford to show how far I diverge from Principal Barker's point of view. To me, *e.g.*, the suggestion "I should only want one" . . . "to retain a high academic standard . . ." (foot of p. 19) is positively repugnant. When I think of the best primary (by no means 'elementary'!) teachers whom I know, eager learners all their lives, I am aghast at the notion that these scholars (real scholars, of the great tradition before "academic standards" were invented) are to study just "from the point of view of their presentation to children and with close attention to the technique of teaching." If it be replied that these primary teachers are exceptions, that the great mass of them must, willy-nilly, be content with a meagre "substance of knowledge," I reply that the Universities turn out a goodly number of the same sort also: that in four years no less than in two you can make or mar the intellectual and artistic impulses of our young teachers; that, in fact, "the letter killeth, but the spirit giveth life."

\* "The School and the Child," pp. 31, 52.

And yet, I shall be asked, what about technique? If you are so insistent that training college students should be inspired with a passion for learning, are you not in danger of alienating their interests from their professional duty? Undoubtedly there is a danger; for young students are suggestible; they may come under the influence of the pedantic type of lecturer or professor who cares only for "high academic standards;" they will then follow Principal Barker in relegating professional studies to the elementary school folk and set up that alienation between Matter and Method which used to paralyze the work of training colleges.

But I am convinced that the majority of training college lecturers are not of this type: we are ourselves students, each, no doubt, with special tastes, although we share the wide outlook and sympathies of modern culture. But we are technicians, too, if we like to accept this dubious term *technique* as adequately describing our function. The root of the matter is that we (and our students with us) are not less scholarly or cultured than our contemporaries in other departments of learning, because we *also* study children and practise technique. On the contrary, the needs of children (and of adolescents—as we shall see in a moment) lead us to add to all our other learning a group of professional studies, psychology and the like. That old heresy which regards the human mind as a rigid vessel from which you must extract so much Latin if you wish to inject so much psychology is threadbare: Principal Barker would not even appear to countenance it if he were not biased by a theory of the organization of education which involves him in elaborate schemes of classification.

For the capital point on which he and I differ arises from this conception of *technique* or something concerned only with children under, say, twelve years of age. One might argue with him on the basis of fact: the best secondary school teachers—head masters, head mistresses, and assistants—now welcome the study of education; they admit that the problem of adolescent life and of the classroom in which young persons are collected for class lessons are worthy of serious attention; they would categorically deny the opinion expressed on page 16. They may not hold that a University department or a training college is the best *venue* for professional study: they sometimes prefer a system of apprenticeship, such as is outlined in Article 69 of the Board of Education regulations. If, however, such a system becomes widespread it will accomplish something more than technique, if by that term Principal Barker means the tricks of the trade. Men and women of gifts who have learned at the Universities a high respect for learning are not likely to be satisfied, either as fourth-year students or in any other category, with food for babes. Principal Barker makes no allusion to the part to be played in training by the scholastic profession itself; he is concerned solely with the inter-relation of Universities, Training Colleges, and the Board of Education. But the teachers themselves, in primary and secondary schools alike, are going to set the pace more and more.

It is true that secondary school teachers in the past have despised training, but they are changing their minds. And the change will powerfully reinforce the position here taken. I have assumed, *viz.*, that the study of education (or technique, if that term be preferred) is

not an extra that may be taken up or discarded at will, but a great branch of inquiry, at once scientific and professional, on which the young teacher, in all grades, makes a start, with the same zeal for knowledge and skill with which he lays a foundation of taste in arts or science. Distinctions between secondary and primary, between childhood and adolescence, will not be ignored, but they will have no more weight in our calling than the distinctions between physician and surgeon in the medical profession.

So far all I have done is to give the briefest possible basis of principle on which to determine the function of the training college. I must be still more brief in making some application of these, recalling Principal Barker's queries : (a) "Should the training college continue to exist or to disappear ?" It will continue to exist, and to give the bulk of its students a two-year course, for precisely the same reason that the primary schools continue to exist. The imperfections of both are due to the same cause, viz., that public opinion only warrants an expenditure adequate to provide two years training for those who are to teach in primary schools. It does not even provide this much for the thousands of uncertificated teachers. When these last are provided for, so that no teacher is admitted to an elementary school until he has passed "through college," the question of affiliating the existing training colleges to Universities will be of more serious import. (b) Ought "all teachers ultimately to have gone through a University ?" The right answer to this query is to deny that it has any particular application to school teachers, but applies to all young persons of exceptional capacity, *in any profession*, who are keen to learn the best that is to be learnt. That is what Universities are for—to give the best *to* the best. I agree with Principal Barker that a huge concourse of mediocre talent in the Universities would destroy their efficiency : but there is no danger. The demand that all intending teachers should be educated at Universities arises from the sense of injustice created by attaching undue privileges to those who secure degrees, but I must not enter into the rights or wrongs of this question.

The real problem for Universities to consider is not concerned either with the opening of their degrees to a wide circle of aspirants, nor with the establishment of "contacts," but with the status and efficiency of the Departments and Faculties of Education themselves. There is only one thing for a University to do in all its departments, viz., to research and to teach at the highest standards. Call it technique if you please—it is technique in the same sense that a department of engineering or theology is concerned with technique. But if a University profess to study education it must make its profession with whole-hearted zeal, with a faith that its studies are of concern to every teacher in the country. Its professors and lecturers will have scanty leisure for establishing contacts or organizing the duties of training colleges. In alliance with their colleagues in other departments of learning, and with their comrades in the teaching profession (also students of education—even the sixth form masters who need no technique !) they will continue, in season and out of season, to be students. If I write with energy on this theme it is because I know, from long experience, how vital it is both to reputation and the happiness of my profession. There was a time, not so long ago, when Departments of Education were grudgingly admitted into the University sphere ;

they were expected to do any and everything which a professor and lecturer should do except the one thing needful. Fortunately for English education they kept faithful to the University ideal, and (as I have had special reasons for ascertaining) Principal Barker's own University of London has maintained this standard beyond all the rest of us. I am ambitious to see our University Departments of Education as respected and trusted by our fellow-teachers as the Departments of Medicine are by the practising physicians: and they will achieve this just so far as they keep their mind on the simple job of studying their subject and helping their students to share their zeal.

The function of the training college is precisely the same; greatly handicapped, it is true, in many respects, but serving equally in their sphere the same high ideals that inspire the efforts of a University staff. Principal Barker speaks of them as being "lone wolves, as it were," because they lack *organized* contact with the Universities. I don't believe it for a moment! Any teacher, or any corporation, can be a lone wolf, if so minded, but a training college, in its own community, can be, and often is, a centre of joyous comradeship and unique influence throughout its locality. Far be it from me to deprecate "contacts" when they spring naturally out of a situation: I owe far too much to such intercourse to deprecate its value, but to organize these contacts is another matter, and, to my mind, the proposal (p. 21) to organize "a grouping of the training colleges round a contiguous university through a joint committee of representatives of training colleges and representatives of the university . . . which should have for its function to seek to discover what, as a joint committee, it can do," is a typical example of organization run to seed and is certainly bad sociology. If a training college wants a University to help it in awarding certificates well and good: that is a clear case for contact which everyone should welcome, and there are plenty of analogies in other professions. But beyond that I see no ground for elaborate machinery. Rather would I quote Principal Barker's concluding paragraph, "I desire a connection of the mind, untroubled as far as may be by administrative structures or rules." This connection already exists wherever the spirit of learning and research extends. I dread the adventures to which Principal Barker invites us, because I am convinced that the energies spent on perpetual organization and re-organization tend to destroy that true communion that binds us in the fellowship of teaching and research.

## A School Intelligence Test.

BY THE LATE S. BOWIE AND A. R. LAWS.

FOR some years the writers have been experimenting with various tests of intelligence in order (1) to differentiate between boys of varying capacities as to their ability to profit by a secondary education and (2) to compare these boys and others with those of previous years. One object of this paper is to emphasize some of the difficulties experienced in attempting to obtain a satisfactory answer to the second of these. Since the results obtained from a series of intelligence tests carried out prior to 1922 gave results too variable for the purpose of comparing boys, an investigation was commenced on some of the tests in use for that purpose. Mr. S Bowie, who did much of the preliminary work, unfortunately succumbed to a long and painful illness before these tests were completed.

In December, 1922, the Northumberland test, No. 2, was given to 399 city Grammar School boys, whose ages varied from seventeen to ten years. In the May following, almost six months later, the same test was given to the same classes, now 397 boys. The scores obtained and the average I.Q.'s calculated from them are shown in the accompanying graph, the numbers attached to the graph being the number of cases at each age.

It will be seen that the results are more uniform in the second test than in the earlier one; also, that the scores and I.Q.'s were in the second test higher than those of the earlier one. The result may be attributed to increased efficiency obtained by a second use of the test, although sufficient time had been allowed to pass to enable most pupils, if not all, to forget the previous work done. The results are tabulated below:—

### TEST.

#### NORTHUMBERLAND, No. 2.

Age.	Cases.	December, 1922.		Cases.	May, 1923.		Gain of I.Q.
		Average Scores.	Average I.Q.		Average Scores.	Average I.Q.	
Over 16.6 ....	12	76.5	92.8	18	82.6	96.7	3.9
15.7—16.6 ....	55	73.1	97.9	66	81.9	102.7	4.8
14.7—15.6 ....	86	75.2	104.8	86	80.9	108.2	3.4
13.7—14.6 ....	84	70.4	107.7	75	77.6	113.2	5.5
12.7—13.6 ....	71	65.0	114.8	73	73.8	119.1	4.3
11.7—12.6 ....	60	60.0	119.0	49	67.0	123.4	4.4
10.7—11.6 ....	31	51.4	122.3	30	58.7	128.5	6.2

It must be remembered that in the above age groups there were some boys who had moved from one to the next higher age group during the time between the tests.

## A SCHOOL INTELLIGENCE TEST

The following figures will, perhaps, show more clearly the variation in the individual I.Q.'s obtained in the two tests. It deals only with those boys who took both Northumberland No. 2 tests, and gives particulars of the increases in the I.Q. obtained in the second test as compared with the first.

Average age.	Percentage of individual who			Total of I.Q.		Change of I.Q. per individual who		Individual	Total change in I.Q.	Average change
	Gained	Rem'd const. in I.Q.	Lost	Gained	Lost	Gained	Lost			
Over 16½	47	16	37	40	38	4.3	5.4	19	+2	.1
" 16	53	11	35	190	118	5.6	5.1	64	+72	+1.1
" 15	55	11	33	189	102	4.3	4	79	+87	+1.1
" 14	67	7	25	331	80	6.9	4.4	71	+251	+3.5
" 13	74	7	18	317	61	6.6	5.1	65	+256	+3.9
" 12	79	8	13	217	19	7.2	3.8	38	+198	+5.2
Under 11½	72	4	24	157	25	9.8	5	22	+132	+5.5

+ = Gain.

The table shows that the variability is greater with the younger boys, that there is at that age much more frequently a gain in I.Q. than a loss, that the diminution of I.Q. is more frequent with the older boys.

The reliability coefficients as calculated by Pearson's product-moment formula, and the mean variations, are given below:—

### NORTHUMBERLAND, No. 2.

Average Age.	Cases.	Reliability Coefficient.	Mean Variation.	
			1922.	1923.
17 years	18	.69 ± .08	5.3	3.8
16 "	64	.73 ± .04	6.9	5.5
15 "	79	.46 ± .06	5.5	5.1
14 "	71	.74 ± .04	7.9	6.7
13 "	65	.75 ± .04	7.8	7.0
12 "	38	.87 ± .03	9.5	7.7

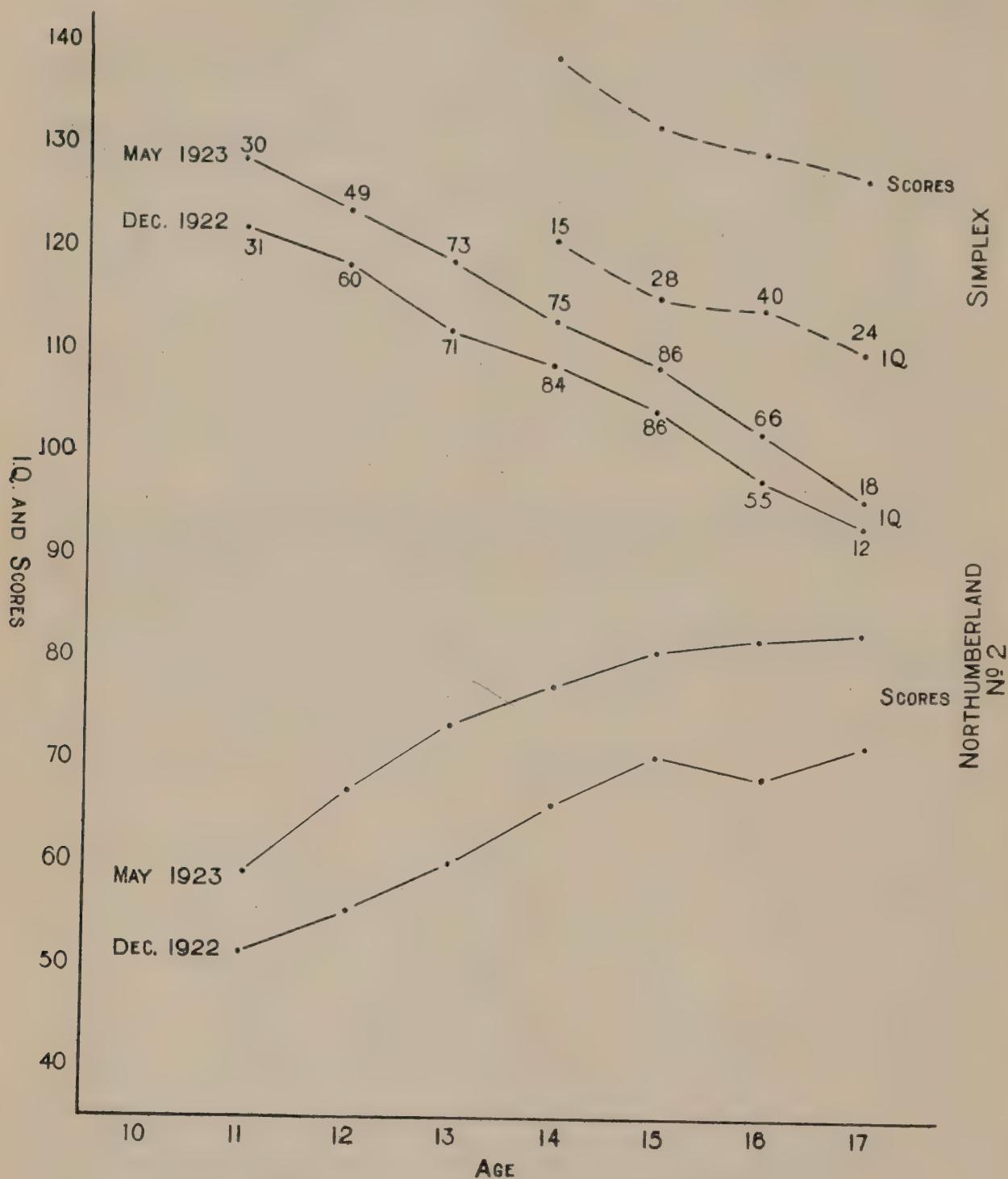
In calculating these coefficients the boys in any one group were the same, but six months older in May than in December. The age tabulated is that at May, 1923. The coefficient for the whole group of 357 boys who sat both tests is  $.87 \pm .008$ .

These figures show that the test is of greater reliability, and, moreover, the scatter, as measured by the mean variation, is low for the older boys though it steadily increases as the age decreases. The scatter is less in 1923 than in 1922.

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SHOWING THE RELATION BETWEEN SCORES AND I.Q. IN NORTHUMBERLAND (No. 2) AND SIMPLEX TESTS.

(The numbers attached to the graphs are the number of cases at each age.)



An inspection of the graph seems at first sight to suggest that the longer a boy remained at the school the worse became his intelligence, for although the marks obtained at the several ages rose regularly in a more or less orthodox manner, yet the intelligence quotients (I.Q.'s), as calculated from these results from figures given by the author of the tests, steadily declined year by year. The classes tested ranged from those taking the School Certificate Examination that year down to the

## A SCHOOL INTELLIGENCE TEST

middle of the junior school. The lowest three classes in the junior school were not examined, therefore boys of low intelligence of the younger age-groups were not included, thus tending to bring the I.Q. above the average of a normal sample. To test whether this was so the results obtained by an examination in May, 1923, of 125 boys for junior scholarships were considered. The boys were specially selected from the elementary schools of the city, and as such might be considered of superior intelligence. They were given the Northumberland No. 2 test as part of their examination. Comparing them with the Grammar School boys we obtain the following:—

### NORTHUMBERLAND No. 2.

Average Age.		Average.		
		No.	Marks.	I.Q.
10 years, 11.8 months ..	Candidates (May, 1923)	96	53.5	124.1
11 .. ..	Grammar School (Dec., 1922) .. ..	31	51.4	122.3
11 years, 4.8 months ..	Candidates (May, 1923)	100	54.9	122.47
11 .. 6 .. ..	Grammar School (May, 1923) .. ..	30	58.7	128.5

Returning to the selected sample, it is to be noted that the boys who had already passed the certificate examination were excluded. This resulted in a number of unsuccessful or undeveloped older boys of lower intelligence being left in the tested classes, to lower the average of the older year groups.

It will be seen from the number of cases that the upper limit of numbers is reached between the ages of 13—7 and 15—6, after which age the numbers begin to fall; indicating that at that age boys are beginning to leave the school.

These facts indicate that in such samples of boys as are usually to be found in any one portion of a school the older groups will have average I.Q.'s lower than normal, while the younger age-groups will have I.Q.'s higher than normal.

Consider next the improved and more uniform results obtained in May, 1923. The change may be due to practice or to the season of the year, spring instead of winter, or to some other cause. Whatever it may be, the improvement is very noticeable, the average gain in I.Q. being 4.6, the lowest being 3.4 corresponding to the age groups which showed the least reliability coefficient and with a small mean variation.

If the I.Q. for any individual is to be considered constant, the average should remain constant. How, then, is this average increase of 4.6 to be accounted for? If it be due to practice then it seems that the best results can be obtained from a test by repeating it some time later, and placing more reliance upon the repeated test than upon the original one.

As a possible explanation of the inverse correlation of I.Q. with age (*see graph*), it has been suggested that since the curve of scores tends to attain a maximum at about sixteen years of age or later, the method of

### A SCHOOL INTELLIGENCE TEST

finding the I.Q. from the norms should be modified. This has been dealt with by the author of the "Simplex Group Intelligence Scale." Again, it should be considered that a young boy who gets nearly full marks on a test would be very unlikely to exceed this at a later time and that, therefore, his I.Q. apparently diminishes as he gets older. If this be so, does it not seem to suggest that the idea of the I.Q. as a constant breaks down for children older than about thirteen years? These explanations may all operate together with that concerning the sample taken.

For comparative purposes it was thought advisable to try the boys with another test, the Simplex being selected, as its author had taken the older children into consideration and, since he is connected with the North of England, the test might be influenced by northern characteristics.

In June, 1924, over one hundred boys in the upper division of the school were given this test. These boys were preparing either for the forthcoming school certificate examination or for the next following one. The scores obtained were as follows:—

		Simplex Results.			
Average Ages ..	..	17.7 years	16.7 years	15.7 years	14.7 years
Cases ..	..	24	43	29	16
Average Scores ..	..	127	129.8	132	138.7

The average class results are tabulated below, only those boys being considered who sat for all three tests.

#### NORTHUMBERLAND, No. 2. SIMPLEX.

Form.	Cases.	December, 1922 I.Q.	May, 1923 I.Q.	June, 1924 I.Q.
Vi	11	113.6	114.4	124.1
Vii	16	107.4	108.2	114.8
IVi	20	112.4	113.6	118.0
IVii	24	113.2	115.0	118.2
IViii	16	102.3	112.1	107.7
Bi	20	109.8	112.9	109.9

It will be seen that among the lower forms the results agree fairly well but that in the higher forms the Simplex results show a higher I.Q. than do the Northumberland tests.

Comparing the Northumberland test of May, 1923, with the Simplex test of June, 1924, by age groups, we have:—

Age Group:	Cases.	Average I.Q.		
		Northumberland, 1923.	Simplex, 1924.	Correlation Factor.
16.7—17.6 ..	24	105.7	109.3	.354 ± .118
15.7—16.6 ..	40	109.3	112.6	.418 ± .087
14.7—15.6 ..	28	116.5	115.6	.685 ± .067
13.7—14.6 ..	107	112.5	114.0	.577 ± .044

## A SCHOOL INTELLIGENCE TEST

The graph on page 136 shows how the Simplex results compare with the Northumberland ones.

Since only those boys who took both examinations are included one would expect the correlations (by Pearson's product-moment formula) to be higher. Since the pupils are classified by age groups these correlations are, in effect, partial correlations for constant age; which partial correlations are recommended by Thomson and Pintner as the correct method of comparing tests (*Journal of Educational Psychology*, 1924, XV, 433).

It seems that the two are testing different things, or different aspects of the same thing. The scatter, also, as measured by the standard deviation is, at each age, greater in the case of the Simplex test.

### COMPARISON OF STANDARD DEVIATIONS OF I.Q.

		Age Group.				
		17	16	15	14	All.
Northumberland	..	8.8	4.9	10.3	(8.2)	9.6
Simplex	..	9.4	10.2	13.9	(9.06)	11.9

If, however, the boys are arranged in order of school standing then the correlation factors are more uniform.

### CORRELATION OF NORTHUMBERLAND No. 2 WITH SIMPLEX I.Q.'s.

				Standard Deviation.	
		Cases.	Factor.	Northumberland.	Simplex.
V Forms	..	26	$r = .591 \pm .087$	7.9	11.9
IVi and IVii	..	45	$r = .658 \pm .054$	10.4	10.3
IViii and Bi	..	39	$r = .455 \pm .094$	10.0	9.27

At the end of each term the marks of each boy, duly scaled, are added together in order to obtain a roll order, the school being subdivided into four parts for the purpose. Most of the boys tested by the Simplex test were in the upper school, and it was thought advisable to correlate the I.Q.'s against the roll order to see whether the results of the test would give any indication of the progress of the boy at a later date. A high correlation was not expected, since this part of the school consists of:—

- (a) Young boys of high intelligence and industry who have passed rapidly up the school but who have not been long enough in the upper school to take a high place on its roll.
- (b) Boys of slow development and medium intelligence who, working slowly but steadily, have in time reached the neighbourhood of the top.
- (c) Boys of good intelligence but indolent or preoccupied with some hobby who have not done their best at their work and so have attained but a low position.

It must be remembered, however, that most methods of marking in school tend to give marks for application, not for capacity.

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CORRELATION OF SCHOOL ROLL ORDER WITH EACH TEST

Age Group.	Cases.	R.		r.	
		Northum- berland.	Simplex.	Northum- berland.	Simplex.
14.0—14.11 ..	29	.187	-.2	.286	-.309
12.0—13.11 ..	34	.21	.21	.323	.323

In calculating  $R$  Spearman's foot rule formula was used, and its equivalent product-moment value ( $r$ ) was deduced from it.

The following conclusions may be drawn :—

- (1) The repetition of a test results in a gain of I.Q. much greater than can be attributed to the time-interval between the tests.
- (2) The gain in I.Q. is greater with the younger boys; a diminution in I.Q. is more frequent with the older boys.
- (3) The repetition of a test results in a lower scatter, as measured by the mean variation.
- (4) An unselected sample of pupils taken from any one particular part of the school will not be normal. It will contain dull older boys and bright younger ones.
- (5) We would like to emphasize the difficulty in a school intelligence test :—
  - (i) Of comparing one year's pupils with those of another year, since the distribution of the samples is not normal.
  - (ii) Of comparing one boy with another on account of the variability in the results due to incidental circumstances.

## The “Use” of Art.

BY DIANA M. LALL.

WITHIN the precincts of this essay I wish to be understood by “use” to mean the serving of an ulterior purpose, and the term art I shall include in the term beauty, sometimes availing myself of the more general, and sometimes of the more particular, term.

The ancient Egyptian believed that art ensured to him eternal life: he was probably mistaken, but modern artists are not much less mistaken in vindicating the usefulness of their subject as a reason for teaching it. That it “trains the powers of observation,” that it represents one method of search for truth, that it provides an additional mode of expression, that it is a means of recording and conveying knowledge and an invaluable aid to the teacher of other subjects, are some of the more usual views which they advance. Its use in war has also been claimed since the appointment of S. J. Solomon, R.A., as director of the camouflage section of our army during the war.

Others, abandoning the arguments for direct usefulness, maintain that art provides us with a refined and cultured means of spending our leisure: something, in fact, to keep us off the streets.

Some modern psychologists have lent colour to this argument by regarding art as a sublimation of the sexual instinct. If it be so it would appear to be a singularly unsuccessful one, since artists have not on the whole left an outstandingly clean record in these respects. We find ourselves speculating how much more intense Wagner’s sexual instinct would have been if he had not written so much music.

Again, why does art appear among Paleolithic men, and, more or less, among all primitive peoples, seeing that the conditions of civilization supposed to bring about the need for sublimation can scarcely then have existed? Art may indeed in some cases be used as a means of sublimation, but it no more *is* sublimation on this account than it is a means of warfare because of the appointment of Mr. S. J. Solomon to which I have already referred.

All these arguments are not usually untrue; they are simply irrelevant. We do not call that useful which is essential. To whom would it occur to write of the usefulness of breathing or of the circulation of the blood? Breathing, one might aver, is very useful because it enables us to sing: or, without the circulation of the blood doctors would be unable to take the pulse and thus a valuable means of testing the patient’s condition would be lost! In these instances the attention is momentarily focussed upon functions usually unnoticed, and thus the advantage we take of them might replace in our consciousness the valuation of their true nature. So is it also with art.

It may be objected, however, that whereas breathing and the circulation of the blood are universal conditions of our existence, art is not. It may possibly be true that there do exist otherwise normal people who have never experienced, even in the slightest degree, the craving to make something for the sake of its beauty: I doubt it. But that there exist people who are unaffected by the presence of beauty I emphatically deny.

If anyone doubt it I suggest the following mental exercise for his spiritual progress, as being at least as salutary as the ascetic practices of Yôga : seated upon the floor in the middle of the room, let him examine every object in it one by one, reducing them, mentally, to their purely useful forms and dismissing them altogether if they fail to fulfil a primarily useful function. The table legs must be divested of their mouldings, the chairs of their tapering limbs ; it may even be questioned whether these things are necessary at all ? The Oriental regards them merely as a luxury—an Indian asked me once " Do even the poor people in your country have tables and chairs in their houses ? " Our necessities are constantly shifting, nay accumulating, and with this amassing of the merely useful, art, from having participated in their very construction, has to seek refuge in their adornment. Where the making of the unnecessary begins, art begins also.

The necklace, when it ceased to be an amulet, became a work of art : truly it may happen to be bad art, but it was made not for use but for the sake of beauty, and is therefore entitled to this claim. It is interesting to consider (though, perhaps, as Horatio would have said, " too curious ") that there was probably a time when the necklace, as amulet, was regarded as far more useful than tables or chairs, and, therefore, had no claims as art at all.

But our attention is wayward, and we must recall it to the contemplation of our room, or that skeleton which is left of it : in truth, a prison cell has as much, unless we are to pause to question why the window there should be curved rather than rectilinear, or what useful purpose can be served by the tormenting dado-line which the eye follows irresistibly round the wall ? How insistent are these things beyond the merely useful, so that if the senses be not pleased with them they turn as a boomerang and smite us. The merely useful may be quiescent, subdued, ignored like the mechanism of our body, but the physically superfluous becomes instantaneously either the food or poison of the spirit.

Let us compare with our room, now reduced, by the process of utilitarianization (if the expression be permitted) to the condition of a prison cell, the environment coveted by the ancient sage in his search for spiritual enlightenment. I quote from the *Shvetashvataraopanishad* : " In a retreat well hid, wind-guarded, level-floored, and clean, from pebbles free and burning sand, that charms the mind with sound and stream and shade, and gives the eye no pain, there should a man strive on for yog." No " useful " things are " necessary " there, but only those which " charm the mind—and give the eye no pain."

And yet, even if we have been able to show that art is not primarily either physically or socially useful, that there is no refuge for it, as it were, but in the spirit, have we after all done more than dismiss it with suspicion like an innocent accused upon whom the verdict has fallen " not proven " ? To the average man we fear this is distinctly " not good enough," for what is this spirit to which art administers but an intangible supposition ? To attempt a definition is foolhardy ; a description will, perhaps, enable us to observe the quarry we cannot hope to capture.

A little introspection will convince us that there are some things normally regarded as having intrinsic value : I set them in what I

conceive to be their order of popularity :—Life, love, power, goodness, truth, beauty. There are others which are abnormal, such as wealth, and all are capable of perversion and abuse : it is also probable that exclusive concentration upon one alone constitutes an abnormality. Their hall-mark is that they are valued for their own sake, and that they are creative, that is, they tend to propagate their kind as contrasted with those things, or the same things, regarded as useful, that is, as serving some ulterior purpose. The æsthetic contemplation of a work of art, for instance, gives rise to nothing in the spectator but the reflection of beauty (a fact which has led Croce to identify the appreciator with the artist. A beautiful scene, it is true, may cause an artist to paint a picture, but this again is nothing but a giving back of beauty : pure values breed true to type.

It is this normal capacity for realizing intrinsic value that I name, because of its traditional associations, the spirit ; and if it be objected that I have argued circularwise and said, "Beauty is spiritual because it is valued for its own sake ; and, the spirit is that which realizes intrinsic value, be it remembered that it is not a definition that I have attempted but only a description of observed experience, our only clue. It may be found that the manifestations of spirit in the appreciation of intrinsic values are as much a condition of its existence as are breathing and the circulation of the blood conditions of physical life.

Anyone who has studied the mysteries of voice production know that it is the rarest thing for us to breathe correctly, and that the perfectly controlled breathing of the singer is an accomplishment of which the majority of us have little conception. The physical organ very probably is more frequently seen functioning perfectly among primitive peoples for whom the conditions of living are less complex ; not so the æsthetic vision, if, as we have suggested, it owes its distinguishing character to an appreciation of values. Here, consequently, our parallel must end. The appreciation of values presupposes a degree of reflective thought unattained by the savage, and if such values are known to him at all they must be reduced to the two which first thrust themselves upon consciousness, namely, life and love. Beauty with them, as with some in our own civilization, is undifferentiated from many other desirable qualities, but this is not to say that it remains unappreciated.

In a society such as our own, where in fact every stage of civilization coexists in spite of the most inappropriate environment, it need cause us no surprise that even the majority cannot appreciate art as we understand it ; neither is such a condition an argument against the essential value of beauty. Such a contention supposes beauty to possess an absolute character which is no part of our conception. Rather in calling it essential, and naming it a spiritual value, have we already indicated its living, dynamic character, commensurate with the growing differentiation of our own faculties and conceptions.

My own experience of popular taste has immensely increased my respect for it, and I believe we do not sufficiently realize how much the expensiveness of beautiful things, while it gives confidence to the primitive sense of value, at the same time hinders their possession by the many. A man who extolled Vandyke as the prince of painters, since he could not afford more, was content with a coloured photograph upon his walls :

he was perfectly aware of the difference, but so essential was some expression of art to him that he must have the photograph rather than nothing. It is left, admittedly, to a more fastidious taste to prefer the bare wall.

We are accustomed to say of people that they are "inartistic," or have "no taste," when, in fact, their aesthetic responses are infantile and their taste primitive.

But it may be objected that the art and taste of primitive peoples is frequently better than much of our own and that therefore the bad taste of our own society cannot be explained as due to its containing primitive elements. It is our continual experience, however, that the good taste of primitive peoples only remains to them so long as they are comparatively untouched by our more complex modern conditions : faced with machine-made "perfection" and the thousand intricacies and possibilities of modern craftsmanship, small wonder if they are unable to distinguish the desirable from the possible in art or craftsmanship, and confound ingenuity with beauty.

It is for this reason that education in art is required, that we may condense the artistic experience of the ages into a form which can be received by the individual, and thus bridge the gulf that must otherwise exist between the modern artist and his public. This we hope is a sufficient reason for teaching it.

## Further Correlations of School Subjects.

By W. B. CHIVERS, B.Sc.

THE correlation of school subjects has received recently much attention from several distinguished mathematicians, but in practically every case their experiments have been limited to a small group of pupils. The use of a small number of pupils rendered the giving of standard tests an easy matter, and the results obtained yielded high factors, but using small numbers there was also a relatively high probable error.

In the following work an endeavour was made to derive correlation coefficients from the ordinary school examinations. By this means a total of over two thousand cases was investigated. It was expected that, using such a large number, the actual coefficients would be of a low order, but, as the probable error was negligible, every coefficient would be significant.

The data was supplied by the courtesy of the headmaster of King Edward's School, Aston, and consisted of twelve years' record of marks in terminal examinations. Altogether, then, there were twenty-four sets of marks in each subject, there being two examinations each year. It was necessary in order to obtain a satisfactory average that the number of candidates chosen should be reasonably constant over the twelve years, and also that the same papers were taken by all the candidates.

The entire Fifth Form, consisting of three or four classes about twenty-five to thirty boys in each, was taken as one example, and the entire Third Form, consisting of three classes about thirty in each, was taken as the other. In the former case the number examined varied from 83 to 104, in the latter, from 80 to 96. In every examination it was ascertained that all the boys had been set the same paper. In the twelve years, five different masters were responsible for the Third Form correcting in one subject only, so that it was impossible to arrange any standardization of marking. It was assumed that the marking for each form was conscientiously done against a definite invariable standard.

The subjects used were :—

Arithmetic

Algebra      ... } Separate in Fifth Form, combined in Third

Geometry      ... } Form.

Physics      ...      Third and Fifth Forms.

Chemistry      ...      Fifth Form only.

History.

Geography.

English.

French.

Latin was not included because in the Third Form the examinations were merely oral tests, and in the Fifth Form half took German, while the others took Latin. Drawing, Scripture, and Manual were not included, because definite marks are not given. In the case of a candidate being absent for an examination, the average mark for the form was given.

An example of the method used in working one of the correlations is given in Appendix I. For the sake of clearness, only one class is taken and the correlation coefficient between Arithmetic and Physics in Form 3A deduced.

It will be seen that there was a considerable amount of mathematical work to be done for each result, and as each examination meant the deduction of thirty-six coefficients to obtain a correlation square, the obtaining of a mean result over twenty-four examinations meant 864 correlation coefficients being worked out for each form.

The mean coefficient of each pair of subjects was put down in the form of a "correlation square," this being the simplest method of recording the results.

In all the following calculations the Bravais Pearson<sup>1</sup> formula was used. For greatest accuracy in working, the means of each subject should be equal. For example, if in a class examination in Algebra the mean was 38 per cent., and in Physics 71 per cent., the correlation coefficient obtained from these results would not be satisfactory, the deviations not being comparable.

It is always advisable to work with a true mean, and when, as is usual, percentage marks are given, let this mean be 50.

Then by means of the correction factor  $K = 50 / \text{actual mean}$ , multiply each candidate's marks so that complete standardization may be effected. The deviations will then completely overlap and a trustworthy result may be obtained.

The Fifth Form square is given in Appendix 2A.

Before any comparisons can be made the Probable Error (P.E.) must be considered. Using Pearson's formula,<sup>2</sup> the P.E. of a correlation coefficient  $R$  is  $.67449 \frac{1 - R^2}{\sqrt{n}}$ .

Now when  $R$  is very small, the P.E. becomes approximately  $.67449 \frac{1}{\sqrt{n}}$ .

The total number taken in the Fifth Form experiment was 2,280. Hence, for small correlations, the Probable Error was approximately

$$\frac{.67449}{\sqrt{2280}} = \frac{.67449}{47.6} = .014.$$

No correlation coefficient may be considered trustworthy unless it is at least three times the P.E., so that correlation coefficients below .04 are unsatisfactory. Considering that in the averaging of results, particular care was used in the elimination of abnormal quantities, and that there was very little deviation from the mean, the results show that the correlation between many subjects was of a very low order.

<sup>1</sup>  $R = \frac{\sigma_1 \sigma_2}{\sqrt{\sum \sigma_1^2} \sqrt{\sum \sigma_2^2}}$ , where  $\sigma_1$  and  $\sigma_2$  are respective deviations from the means.

<sup>2</sup> "Essentials of Mental Measurement." (Brown and Thompson. Page 113.)

The observations recorded below are to be treated chiefly as suggestions; each square may be the subject of almost innumerable observations, when carefully analysed.<sup>1</sup>

(1) The Arithmetic, Algebra, and Geometry group. As might be expected, the affinity between Algebra and Arithmetic is greater than that between Geometry and Arithmetic, but it is curious that the coefficient Geometry to Algebra is so very low, being only just above the doubtful order.

(2) The Sciences Group. Note the relatively high correlation between Physics and Chemistry. This is explained by the fact that much of the Chemistry taught was dependent upon many calculations, these being similar to those used in Physics. The inclusion of the practical examinations materially lowered the coefficient. The fairly high coefficient between Geometry and Physics is accounted for largely by the fact that the Physics taught was chiefly Mechanics and Properties of Matter. In one series of marks, *twenty* of the Physics and Geometry *orders* were identical, the coefficient for the 95 cases being .67. This was regarded as an abnormal result, being the only one exceeding .55.

(3) The History-Geography Group. There is a fairly high coefficient between these subjects, though there is very little to account for it, when the syllabus is examined. In Geography the region is Asia and the main feature of the syllabus is the Physical Geography of the World. In History the period is 1815 to the present day. History and English have a relatively high correlation, because a high standard of English composition is usually required by the examiner in history. I regard .432 as an abnormal result (*see* Appendix 3A), and it would probably be different under other conditions of correction.

(4) The English and French Group. With the exception of Algebra and Physics, English has a significant coefficient with all subjects. It is largely due to the fact that in every examination the examiner, consciously or unconsciously, awards marks for style. In the test to be described later, absolute elimination of this disturbing factor was obtained. There is relatively high correlation between English and French, viz., .53. If it had been possible to have obtained really trustworthy results from Latin and German, it would have been interesting. A few results worked out, using only 30 boys for each, averaged as follows:—

English-Latin	....	....	.311
English-German	....	....	.434
French-Latin	....	....	.193
French-German	....	....	.425

As the P.E. is .12 there are only two results which are at all trustworthy, and it is interesting to note that the highest correlation is between the modern languages.

(5) The Negative Correlations. Some of these are of fairly considerable merit, particularly the  $-.171$  for History and Arithmetic, and the  $-.224$  for French and Chemistry. It is particularly interesting in the latter case because a modern language is a necessary subject in any science course.

<sup>1</sup> The results in this paper may be compared with those given by —. Stead, *FORUM OF EDUCATION*, Vol. II. See also —. Hamilton, *THE FORUM*, Vol. V.

The square obtained from the Third Form papers in the same way is given in Appendix 2B. It is quite as interesting as the Fifth Form square, for it has far greater variations and the coefficients are far more decisive in character.

In this case, the P.E. was approximately  $\frac{.67449}{\sqrt{2136}} = \frac{.67449}{46.2} = .0146$ .

so that all correlations below .04 must be considered worthless. The following observations are to be taken as mere notes rather than definite statements.

(1) The Mathematics and Physics Group. There is fairly high correlation between Algebra and Geometry (combined) and Arithmetic, and still higher correlation between Physics and Arithmetic. In this school the Third Form Physics is practically applied Arithmetic—the working out of mensuration problems, volumes, densities, and simple problems in mechanics. This is one of the most trustworthy results I have obtained; there were no fewer than eighteen results in the twenty-four within .1 of the average.

(2) The History-Geography Group. As in the Fifth Form square, the correlations of History-Mathematics and History-Physics are very low. In the correlation of History with Algebra and Geometry there were 15 negative results showing extreme instability. Among the juniors, Geography and History do not appear to closely correlate, while the factor Geography to Mathematics and Physics is fairly high. This latter may be explained by the fact that the Geography is wholly physical and introduces numerical work in connection with map reading.

(3) The Languages. The correlation of English with History is strongest, but again I regard it as a case of mixed marking in the examinations. The factors, English-Physics and English-Geography are interesting, both being of fairly high degree, whereas in the previous square Physics is not correlated at all. French is very poorly correlated with all subjects except in the case of English; this is due, possibly, to French being a comparatively new subject to many of the boys.

(4) Negative Factors. The only definite negative results occur with French and Arithmetic, and French and Physics, respectively, and these are too untrustworthy to form upon them any general statement.

It will be noticed that there is very little connection between the Third and Fifth Forms' results—not nearly so much as was expected. It was thought that some error might be due to the many different standards employed by those correcting, so that a series of short tests was set to the present Third and Fifth Forms. These were arranged to be practically independent of any personal reaction and were corrected by three persons and an average taken. Instead of a few long questions, a paper was set consisting of 50 short questions to be answered on dictation. The only exceptions were Mathematics and Physics. Each class was given three examinations in each subject, and the correlation coefficients worked out as in the previous cases, an average of the three coefficients being put in the correlation square.

The Fifth Form square is given in Appendix 3A.

The results were compared with those obtained by the average, and it is interesting to note that, while there are considerable differences, the values do not differ so much as might be expected, considering the different nature of the test.

The Probable Error was approx.  $\frac{.67449}{\sqrt{294}} = .039$  for small values of R, as 98 candidates were examined.

All results less than .078 were rejected.

In this square there are one or two interesting cases due to details in the examination.

(1) The Physics-Chemistry factor is high; as far as possible the questions in each paper were Pure Physics and Pure Chemistry, only 10 per cent. of them being numerical, and these of very simple order. There is clearly a close connection between the sciences, which is intensified when no artificial correlation is introduced.

(2) The History-English coefficient is remarkable in that it confirms the deductions made on the previous results. The change is undoubtedly due to the examiner marking on facts alone, with no allowance for style of composition.

The coefficients of this examination are in nearly every case higher than those of the former, but their relative magnitudes are remarkably consistent. This points to the fact that school subjects are correlated in a manner practically independent of the nature of the examination used to obtain the results. It is also an indirect proof of the efficacy of the short oral examination as a test.

The Third Form square, given in Appendix 3B, also confirms this statement, and was even more satisfactory in its results. In nearly every case the coefficients are relative to those obtained by the long average.

*Further conclusions.*

(1) The research described in this work was conducted partly with a view to finding a Group Factor<sup>1</sup> giving a Hierarchical order<sup>2</sup> among the correlations. If such a quantity exists, it must be very complex, for though the results have all been subjected to a careful mathematical treatment on the lines suggested by Spearman and others,<sup>3</sup> there is no such factor apparent, the coefficients being quite independent.

(2) The coefficients obtained are considerably lower than those obtained by other experimenters, this being, no doubt, partly due to the large number of cases under investigation.

(3) There is a remarkable independence of correlation factors from fluctuations caused by absence of standardization of marking.

Although in one instance seven masters marked one set of papers, the maximum fluctuation in the coefficients derived was .05.

(4) The great difficulty of eliminating disturbing factors. The second test was very carefully worked out, and it may be safely said that where great discrepancies exist between the factors of Test 2 and those of Test 1, they may be explained by reference to some disturbing factor at work.

<sup>1</sup> "Essentials of Mental Measurement." (Brown and Thompson, page 166.)

<sup>2</sup> Op. cit., page 165.

<sup>3</sup> Op. cit., page 169-172.

(5) The remarkable efficiency of the average school examination. Very rarely did the factors obtained from the 24 results vary sufficiently to cause a serious disturbance in the average. This may be taken as a proof of the constancy of examinations, even when different standards of marking are used and when different masters set the papers.

I also wish to acknowledge the help given to me by J. Manton, Esq., M.A., headmaster of King Edward VI School, Aston, for the loan of the school records, and for his assistance in collecting the necessary data.

## APPENDIX I.

## IIIA.—ARITHMETIC AND PHYSICS.

No. of can.	Arith. marks.	Physics marks.	A. corr.	P. corr.	$\sigma_1$	$\sigma_2$	$\sigma_1^2$	$\sigma_2^2$	$\sigma_1\sigma_2$
1	66	64	51.3	68	1.3	18	2	324	23
2	45	39	35	41.5	-15	-8.5	225	72	13
3	61	53	47.5	56.3	-2.5	6.3	6	40	-16
4	71	51	55.2	54.3	5.2	4.2	27	18	22
5	98	58	76.2	61.7	26.2	11.7	689	137	307
6	67	52	52	55.3	2	5.3	4	28	11
7	93	50	72.3	53	22.3	3	497	9	67
8	77	60	60	64	10	14	100	196	140
9	78	54	60.7	57.5	10.7	7.5	115	56	80
10	50	18	39	19	-11	-31	121	960	341
11	75	51	58.3	54.2	8.3	4.2	69	18	35
12	42	30	32.6	32.9	-17.4	-18	305	324	313
13	63	45	49	48	-1	-2	1	4	2
14	88	52	68.5	55.3	18.5	5.3	342	28	98
15	53	56	41.2	59.6	-8.8	9.6	77	92	-84
16	51	37	39.6	39.4	-11.4	-10.6	130	112	121
17	30	36	23.3	38.3	-26.7	-11.7	713	137	312
18	70	44	54.5	46.8	4.5	-3.2	20	10	-14
19	62	46	48.2	49	-1.8	-1	3	1	2
20	18	35	14	37.2	-36	-12.8	1300	164	461
21	50	36	39	38.3	-11	-11.7	121	137	129
22	98	49	76.2	52	26.2	2	687	4	52
23	63	55	49	58.5	-1	8.5	1	72	-8
24	56	42	43.5	44.7	-6.5	-5.3	42	28	34
25	38	38	29.6	40.5	-20.4	-9.5	417	90	198
26	81	69	63	73.5	13	23.5	169	552	305
27	92	80	71.5	85	21.5	35	462	1225	754
28	48	39	37.3	41.5	-12.7	-8.5	162	72	108
29	72	58	56	61.7	6	11.7	36	137	70
30	46	33	35.8	35	-14.2	-15	202	225	213
31	93	23	72.4	24.5	22.4	-25.5	502	650	-560
	Av. 64.3	Av. 47	Av. 50	Av. 50			$\Sigma\sigma_1^2 = 7547$	$\Sigma\sigma_2^2 = 5922$	$\Sigma\sigma_1\sigma_2 = 3529$

$$R = \frac{\Sigma\sigma_1\sigma_2}{\sqrt{\Sigma\sigma_1^2} \cdot \sqrt{\Sigma\sigma_2^2}} = \frac{3529}{\sqrt{7547} \cdot \sqrt{5922}} = .526.$$

## APPENDIX II.

## A.

	Arith.	Alg.	Geom.	Phys.	Chem.	Hist.	Geog.	Eng.	Fr.
Arithmetic .....	—	.318	.206	.221	.296	—.171	.011	.120	—.091
Algebra .....	.318	—	.289	.166	.141	.071	.066	—.092	—.161
Geometry .....	.206	.289	—	.396	.101	.191	.155	.200	—.131
Physics .....	.221	.166	.396	—	.484	.104	.245	.110	.044
Chemistry .....	.296	.141	.101	.484	—	.112	.213	.240	—.224
History .....	—.171	.071	.191	.104	.112	—	.339	.432	.261
Geography .....	.011	.066	.155	.245	.213	.339	—	.340	.107
English .....	.120	—.092	.200	.110	.240	.432	.340	—	.531
French .....	—.091	—.161	—.131	.044	.224	.261	.107	.531	—

## B.

	Arith.	Alg. & Geom.	Phys.	Hist.	Geog.	Eng.	French.
Arithmetic .....	—	.332	.490	.003	.293	.093	—.199
Algebra and Geo.	.332	—	.370	.111	.144	.170	.071
Physics .....	.490	.370	—	—.091	.194	.252	—.181
History .....	.003	.111	—.091	—	.178	.493	.191
Geography .....	.293	.144	.194	.178	—	.441	—.109
English .....	.093	.170	.252	.493	.441	—	.211
French .....	—.199	.071	—.181	.191	—.109	.211	—

## APPENDIX III.

## A.

	Arith.	Alg.	Geom.	Phys.	Chem.	Hist.	Geog.	Eng.	Fr.
Arithmetic .....	—	.421	.300	.367	.233	.114	.105	—.112	—.210
Algebra .....	.421	—	.316	.252	.291	.200	.191	—.171	—.147
Geometry .....	.300	.316	—	.271	.147	.171	.193	.197	—.073
Physics .....	.367	.252	.271	—	.512	.235	.299	.213	.201
Chemistry .....	.233	.291	.147	.512	—	.224	.397	.231	—.177
History .....	.114	.200	.172	.235	.224	—	.579	.311	.297
Geography .....	.105	.191	.193	.299	.397	.579	—	.333	.244
English .....	—.112	—.171	.197	.213	.231	.311	.333	—	.450
French .....	—.210	—.147	.073	.201	—.177	.297	.244	.450	—

## B.

	Arith.	Alg. & Geom.	Physics.	Hist.	Geog.	Eng.	French.
Arithmetic .....	—	.397	.641	.200	.267	—.111	—.178
Algebra and Geo.	.397	—	.511	.261	.241	.211	.121
Physics .....	.641	.511	—	.108	.303	.179	.011
History .....	.200	.261	.108	—	.211	.311	.112
Geography .....	.267	.241	.303	.211	—	.320	—.081
English .....	—.111	.211	.179	.311	.320	—	.331
French .....	—.178	.121	.011	.112	—.081	.331	—

## An Experiment with a Project Curriculum.

By Ellsworth Collings, Professor of Education, University of Oklahoma.  
(New York : The Macmillan Co. 1923. Pp. xxvi+346. 12s. net.)

MCDONALD county occupies the extreme south-western corner of the State of Missouri: on the west it adjoins Oklahoma and on the south Arkansas. It is a sparsely-populated district. The number of children attending the school in which the important experiment described in this book was conducted numbered forty-one, but they were drawn from an area of seven square miles. The people are largely of English extraction and natives of the county. They are financially comfortable. Their ambition is to own a small farm ranging from forty to eighty acres, and all, with very few exceptions, have realized it. The education they have received is, however, limited. The author was superintendent of education in the county, and in 1917 decided to try an experiment in making and working a curriculum for rural schools such as those he was acquainted with, which would interpret and express "the basic ideas implied in the concept of *project method* as formulated by Professor William H. Kilpatrick."

The term "project method" is not particularly suggestive: it does not indicate that the differentia of the method is said by its advocates to be looked for in the fact that the material for the curriculum is selected from the purposes of boys and girls in real life. I may, perhaps, at the outset, be allowed to hazard the opinion that the success which I am convinced attended the experiment was not mainly dependent on this consideration, but on the methods adopted for carrying out the various problems raised (spontaneously or under the influence of skilful suggestion) by the pupils: they seem to me very sound, and must have contributed materially to giving life and interest to the work. Indeed, the use of the same methods in teaching the subjects contained in the ordinary curriculum would remove the unreality and monotony that now weigh upon many schools in town and country. An examination of the problems which are so fully recorded and described in the book will make it immediately clear that behind the pupils there were, in the persons of the two teachers, strong suggestive forces, and behind these a stronger one in the person of the enthusiastic and expert supervisor. I have, however, no doubt whatsoever that much of the school work was based on problems suggested by the pupils themselves, and that a valuable educational principle was thus put into practice.

For the purposes of the experiment, the pupils attending the experimental school were divided into three groups, the first containing children six, seven, and eight years old, the second those between nine and eleven, and the third included children twelve, thirteen, and a few fourteen years of age. The morning time-table made provision for the supervision of each group in "story projects" and "hand projects," and that for the afternoon made similar provision for "play projects" and "excursion projects." The writer explains that "play projects represent those experiences in which the purpose is to engage in such group activities as games, folk dancing, dramatization, or social parties. Story projects include purposes to enjoy the story in its various forms—

oral, song, picture, phonograph, or piano. Hand projects represent purposes to express ideas in concrete form—to make a rabbit trap, to prepare cocoa for the school luncheon, or to grow cantaloupes (muskmelons)." In no reference to hand projects do I find a single use made of the misleading phrase, "hand-and-eye training," nor do I find any evidence that the use of manual work for the expression and clarification of ideas and for making useful things was submerged in a series of exercises aiming at the development of skill in the control of this or that tool. Excursion projects included the study of problems connected with the activities of the people of the district, and this was carried out, not wholly or even mainly within the school walls, but by excursions to the spot, be it farm or court or factory, where the particular activity studied was carried on. I have not read any book dealing with the use of play, simple dramatic work, practical work, and visits of observation, so sound in theory, so sensible in practice, and so satisfactory in result, as this work of Professor Collings.

Besides the experimental school, two other schools in the same county, having an enrolment of twenty-nine and thirty-one children respectively, were made use of as "control" schools. At the beginning of the experiment, all three were typical rural schools, and were very much alike in every respect. They followed a curriculum common to Missouri country schools. "It was the intent of the experiment that the chief variable between the experimental and the two control schools should be the curriculum." Various tests and inquiries were made in 1917 and 1921, and in the intervening years, in order to obtain material for determining whether the experimental school had not only succeeded in carrying out the work it had marked out for itself to be done under the new conditions, but whether its pupils could also satisfy the examination tests, usually applied to elementary schools, as satisfactorily as pupils attending the control schools and American primary schools generally. I may briefly say that the experimental school showed up well at every point, while as to its influence on the community it served, it had produced unexpectedly favourable results.

The book gives detailed accounts of the curriculum of the control schools and of the work of the experimental school. The nature of each "project" is exhaustively described, and full reports given of the way in which representative problems belonging to each group of "projects" were discussed between teacher and pupils, and of the manner in which they were carried out. Detailed lists are given of the stories read, plays written, excursions paid, and the articles made by hand. Inventories are supplied of the school equipment, the library, and of the apparatus used for games. It is interesting to note that the needs of the school were supplied in no grudging way; for example, it had a piano, a phonograph with a number of records, instruments for a small orchestra, a stereograph, and a lantern.

Although therefore for the general student of educational methods and experiments, the book is overloaded with detail (29 tables and 10 charts are used to set out certain simple statistical and other results), yet if, as I take it to be the case, its main aim is to present the case for the Project Method to American elementary school teachers, and to give those who decide to try it practical help in doing so, I will not venture to

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say that it can with advantage be much condensed. It will be found useful by teachers in all countries.

The book is a clear and interesting record of a courageous and careful experiment in school reform carried out under difficult conditions. Professor Collings is to be congratulated on undertaking the experiment, on the success which attended it, and on the account which he has given us of it.

W. PHILLIPS.

## Instinct, Intelligence, and Character.

By Professor Godfrey H. Thomson. (Allen and Unwin. 10s. 6d. 281 pages).

THE lectures which form this book were delivered at Columbia University by Dr. Thomson as Visiting Professor of Education. As they were indeed thrice delivered, they express the considered views of a competent authority. Some five years ago there appeared Professor Nunn's "Education, its Data and First Principles," and its chief attraction, at least to the present reviewer, was that it studied the data of education from a definite point of view, namely, Dr. Nunn's. And now to such books is added Dr. Thomson's comprehensive survey, which includes instincts and habits, play and the learning process, the nervous system, psycho-analysis, intelligence tests, differences in will and temperament, and many other topics. Space will not allow a discussion of the twenty-six chapters which make up the book. After an illuminating chapter on the laws of heredity there follows one on the instincts, where reference is made to Tansley's, McDougall's and Thorndike's classifications. The author recognizes the importance of the instincts even if he is not greatly concerned how they are to be classified. The very brief chapter on play suffers by comparison with Dr. Nunn's brilliant treatment. Professor Thomson upholds the biological theory of Groos that "play is a preparation for the earnest activities of life." It must be admitted that this "theory" has gained a host of adherents, and, moreover, has a respectable pedagogic ring. Nevertheless many would now agree that not a single one of the well-known "theories" of play accounts for all the facts, and although the principle of economy of hypothesis must be respected, it is still more vital to reject or supplement hypotheses when necessary. Here, as elsewhere, one difficulty is that of terms. Some writers on play emphasize the motor side to the neglect of the cognitive; the movements concerned being regarded as essentially the exercise of instinctive modes of action, while the elements of imagination or invention are hardly considered. It may suffice to point out that Groos's theory is not only rejected by Watson, the archdruid of behaviourism but is also subjected to weighty criticism by McDougall, the apostle of purposive striving. At the same time McDougall's view that the energy sustaining play is the surplus of nervous energy of the animal working through the channels of the various motor mechanisms would hardly account for all forms of play. Every activity, if continued, will produce in the individual a "set" or state which is removed from euphoria, and in a very real sense play is often that activity which quickly restores the individual's euphoric state. Such a view makes no sharp distinction between work and play in the sense of the "recreation theory," but its pedagogic corollary would be the conserving of euphoric states.

It is tempting to quote one or two passages from this chapter: "If it be true . . . that a period of play was found by Nature to produce races of animals who conquered those who possessed ready-made instincts, would one not expect as a corollary to find that acquired characteristics are not inherited." "Progress in evolution is like finding the centre of

a maze. It is better for each generation to re-enter the maze with the power of learning than to start at the point, possibly in a blind alley, at which the previous generation finished. Inheriting acquired characters would involve blind alleys." When we consider Dr. Thomson's skill with dice problems we should expect him to prove without much difficulty that enormous progress in evolution might still conceivably occur even if acquired characteristics were inherited and even if this inheritance did occasionally involve blind alleys. But such carping would be hardly fair, as the author is only concerned with the strong presumption in favour of Weissman's thesis, which, nevertheless, is disputed by some biologists of standing.

Turning now to the chapter on the learning process, the crux turns out to be the view taken as to the nature of "trial and error learning." The extreme behaviourists give a purely mechanical explanation by the aid of the law of frequency, the movements retained being merely those most frequently carried out, these being at the same time the successful movements for the simple reason that they are those which must occur in every trial that does not end in failure. Another school invokes the aid of the law of satisfaction and the law of practice. The pleasure attending success "somehow" stamps in the correct reaction. Dr. Thomson holds this view, and the inevitable word "somehow" has crept in. In a third school could probably be grouped several psychologists of the highest rank who, whatever their views on the law of satisfaction, yet agree in rejecting the mechanical interpretation for one more rational. Thus McDougall refers to his dog's behaviour as purposive and intelligent. Koffka and Köhler, leaders of the new Gestalt school, also speak of the animal's "insight without the aid of a chance discovery," and ultimately conclude that all learning requires the arousal of configural patterns. Spearman also champions a rational theory which has the fundamental merit of defining the term "intelligence" as the power of noogenesis, or the educating of relations and correlates. What light does experiment throw on the law of satisfaction or on the rationality of trial and error learning? Curiously enough it is difficult to prove experimentally that the pleasurable emotion attending success favours further success. There is Sanford's experiment of throwing balls at a target, the hypothesis underlying it being that if success were directly effective it ought to make the average score following a bull's eye better than the average throw preceding such a throw. The scores, however, showed but small and variable differences; and the same was true with reference to the scores for throws preceding and following very poor throws. Similarly Snoddy's experiments with mirror drawing lead him to the conclusion that the feeling of pleasantness following a satisfactory movement had no effect upon the reappearance of the movement. Further, Koffka points out another difficulty, for the pleasure follows much later than the movement. For instance, when the cage from which an animal must release itself has more than one lock, the opening of the first lock can bring no pleasure, and before the other hindrances are set aside the animal may make many false responses. Yet even under these conditions the animal will learn to carry out the first act of such a series.

As for the rationality of trial and error learning, some striking results showing the rôle of intelligence in mirror drawing have been

obtained by Gopalaswami, a pupil of Spearman. It is, of course, necessary to consider each task on its merits, for to traverse a tunnelled maze in utter darkness is a different problem from threading a Porteus maze in the usual way. Thus Dr. Thomson has some excellent advice to give on the various school tasks which involve trial and error. It would seem that the value of the book would be still further enhanced if, in the next edition, references could be given to Köhler's experiments with chimpanzees, to the Gestalt theory and to the recent work on trial and error done in Spearman's laboratory.

On reading the book the impression is obtained that Dr. Thomson would be willing to accept most of the views of those psychologists who have proposed the above-mentioned rational theories of learning and that when a divergence occurs it is more apparent than real.

One imagines that it was an unusual and probably refreshing experience for the students of Teachers' College to attend lectures by the same authority on all these different topics, as during a recent visit the reviewer found that educational psychology is there divided into a number of special topics, such as intelligence tests, for each of which, and no other, a professor is responsible!

Professor Thomson has written a book which merits, and will doubtless gain, the careful study of educationists.

LL. WYNN-JONES.

## Book Reviews.

**The Teaching of Biology in Schools and Training Colleges :** by E. M. Poulton, M.Sc. (Cornish Brothers, Ltd. Pp. xv+112. 5s.)

Miss Poulton's book on "The Teaching of Biology in Schools and Colleges" should be welcome at a time when the fundamental importance of general biology in the educational system of the country has begun to receive wider recognition.

The book sets forth the main principles which must underlie biological teaching if it is to achieve the aims of arousing æsthetic emotions, affording training in scientific thinking, and leading to a better understanding of human life. In addition, the special value of Nature Study in the school lies in the fact that it is the only subject which brings the child into direct contact with life, one of the few subjects in which he can discover his facts at first hand, and one in which he may develop a deeper appreciation of Beauty. Emphasis is, therefore, laid throughout on the importance of the study of the living plant or animal.

Suggestions for methods of teaching and selection of material are rightly based on consideration of the psychological development of the child, and these lead to a choice of living material, typical of his surroundings, and, if possible, seasonal, and treated in a manner suitable to his stage of development. The æsthetic approach and the need for direct contact with nature are considered essential in the early stages, while interest in details of form, in experiment, and in general principles follow with the growth of scientific interest. With regard to methods, stress is again laid on the importance of the living aspect of the plant or animal, and on the attitude of the teacher whose part lies in helping the children to observe and discover. A later chapter discusses the need for giving the children opportunity at all times to express their ideas in concrete form, especially by means of drawing and language, and suggests possibilities of co-ordination with other subjects. Special activities are also mentioned such as outdoor work, gardening, growth of plants in the classroom, and keeping of aquaria and vivaria.

The author is of opinion that little is to be gained by adoption of the Dalton plan to any great extent, the above method giving the necessary scope for initiative and expression. We are inclined to agree that while many topics, particularly those in which continued observation is required, might well be dealt with on an assignment plan, difficulties connected with the supply of material, and the teaching of methods of observation, recording results, etc., will necessitate considerable modification of the plan if time and effort are not to be wasted by teacher and children. However, we await the result of further experiment and meantime commend any attempt towards less formal methods.

Chapter VI deals with some common difficulties and errors in the teaching of Biology. We feel that much of the lifeless treatment of the subject and lack of coherence in the courses of study may be due to the fact that Nature Study is so frequently taught by teachers whose interests do not lie in this direction. The same, however, might be equally said of other subjects in the curriculum. We should welcome experiments by teachers interested in animal study, particularly in view of the results of enquiries described in a later chapter. These results are interesting, but with so many possibilities of interpretation it is difficult to estimate the value of the conclusions. The most useful evidence is probably obtained from the indirect questions.

Chapter VIII describes the present position of Biology in Training Colleges, and gives suggestions for dealing with special difficulties. The lack of uniformity in the previous training of students here discussed is generally felt. Several colleges at present attempt to give all students an elementary Biological Course. The main difficulty, in addition to lack of time, seems to lie in the co-ordination of this with other courses, the knowledge of general principles being required at an early stage if it is to form a basis for teaching the principles of education.

The book concludes with a set of questions suitable for promoting discussion and a useful bibliography.

A. M. M.

**Democracy and Labour :** by Professor F. J. C. Hearnshaw. (Macmillan. 1924. Pp. xviii+274. 10s. 6d.)

**Democracy :** by W. H. Mallock. (Chapman and Hall. 1924. Pp. xvi+213. 6s.) It is very desirable that teachers of the humanities should have some grasp of modern political and social problems. The more widespread the study of these problems, international and domestic, the sooner will satisfactory solutions be worked out in principle and applied in practice. The works before us are both well worth reading as contributions to this study. They are interesting in substance and style; the material is well handled and informing. But they must not be taken as general treatises on democracy. They are propagandist works, written with the purpose of tilting at Socialism. It would be well for readers of these books to balance their minds with recent contributions from the other side, such as Mr. and Mrs. Webb's "Constitution for the Socialist Commonwealth of Great Britain," and Lord Haldane's evidence before the Coal Commission (published as "The Problem of Nationalization"). They would derive great benefit, too, from Miss Follett's rather diffuse but very stimulating work, "The New State," written from an entirely different standpoint. This book is quoted with approval by Professor Hearnshaw.

Mr. Mallock's "Democracy," the last of a long series of political studies, is extracted from his treatise, "The Limits of Pure Democracy." It has itself the limitation suggested by the fuller title: it is directed mainly against pure, *i.e.*, extreme, democracy, especially in the form of Communism. Although Mr. Webb and Mr. Bernard Shaw are criticised in company with Karl Marx, the attack on them is hardly so convincing; at least, it admits of more parries and counters. The most interesting part of this book is the account of various Communistic experiments, from the first settlement of Shakers in North America to the famous New Australia in Paraguay, and the analysis of the causes of their failure. In his psychological section (Chapter X: The Psychology of Sane Reform), Mr. Mallock was hardly so happy as in his historical work. The treatment of altruistic motives as no more than pale emanations from the self-regarding instincts has about it too much of the savour of utilitarian philosophy. It recalls Bentham's saying that his selfishness somehow took the form of benevolence.

Professor Hearnshaw deals more closely with current politics. His book was evidently inspired by the conviction that organized labour had taken the wrong turning. He was greatly stirred by the policy of "direct action" which immediately followed the return of international peace. The crisis which led to the downfall of the Triple Alliance in 1921 seemed to him to present "the supreme issue of Bolshevism versus Democracy," and to be "obviously the turning point of the fate of the nation." If we cannot quite accept this view we can, at least, commend the admirable statement of the principles which have guided the growth of democracy, and must, to a large extent, actuate its development in the future. The main purpose of the book is to advocate constitutional reform as opposed to revolution, and majority rule as against the rule of an active minority—a system that is now fairly widely canvassed, but little practised outside Russia. Professor Hearnshaw holds that it is the business of a majority to govern, and the business of a minority to persuade until, if the fates are kind, it becomes in turn a majority.

One or two important statements are more open to criticism. It is claimed that the two-party system is essential to a sound democracy. But the two-party system has gone, and it shows no sign of returning. Moreover, with our present machinery of government, the existence of three parties makes minority rule not only possible but probable. In view of this difficulty, Professor Hearnshaw seems to us to brush aside rather lightly the schemes, such as proportional representation and the referendum, which have been put forward as safeguards of public opinion.

Again, while stress is rightly laid on the legal sovereignty of Parliament, it would be well to admit that the practical sovereignty is by no means so wide as the legal. For instance, Parliament is very far from controlling fully and steadily the work of administration. It is often the executive that controls Parliament. This point has important bearings on both the theory and the methods of government.

But if these two books leave room for qualification and counter-argument, they also in many parts carry conviction. Both are serious and able contributions to political thought, and they well deserve careful reading by all students of public affairs.

C.G.

**The Normal Mind : An Introduction to Mental Hygiene and the Hygiene of School Instruction :** by William H. Burnham, Ph.D. (D. Appleton and Co. Pp. 702. \$3.50.)

The publishers' notice of this book reads : "Here is a book that shows how to make the most of one's native ability, how to gain the power of thinking clearly, and how to avoid the handicaps and bad mental habits by which most people's thinking is muddled and the mental health impaired." If this claim were substantiated, the book, certainly, would be for every one to read, mark, learn, and inwardly digest ! But in the opinion of your reviewer, the claim is too ambitious. Dr. Burnham has made a genuine attempt to combine modern views on psychology, physiology, and hygiene in such a way as to help everybody. The result is that the book, it is to be feared, will help few who have not previously made themselves familiar with some one standard work at least on the subjects just mentioned.

The author states in his preface that the book "does not treat of intelligence, or imaginal or learning types . . . nor of the emotions or the endocrine glands, the Freudian mechanisms, or of the various mental disorders of childhood and youth. . . . This book does, however, discuss fundamental principles related to all these subjects, and to mental hygiene for normal children." But how can these so-called fundamental principles be discussed without some explanation, some treatment of the subjects concerned ? It is because Dr. Burnham has tried to do what seems to me impossible that we find the introduction of technical terms and phrases without any adequate explanation of their meaning. One feels that Dr. Burnham himself realized this weakness, for he gives a brief glossary at the beginning of his book—a practice which I do not think is to be commended, for the meanings of terms should be made clear at the time, and in the actual context in which they are used.

The book, indeed, often proves difficult reading. For example, under "Fatigue" (page 390), we read that fatigue is a form of protective inhibition. "To illustrate this somewhat more concretely, although the exact working of the system we do not know, in neuromuscular activity the end plate fatigues relatively easily." Again in discussing the point that integration is the essential characteristic of the normal mind, we read ". . . and, on the other hand, we find that the one most serious fault in a pupil is lack of attention, lack of concentration. This means lack of integration." And on page 478 there are these words : "Most tragic of all, perhaps, is the fact that the stimulus of success is intoxicating, and is likely to make one heady. Hence is needed the antitoxin of failure. In the early stages this is a valuable remedy for the ego complex, and a preventive, perhaps, of many cases of megalomania." One is tempted to ask how many injections of this useful antitoxin are usually required to cure that awful ego complex.

In spite of the above criticisms, there is much that is excellent in Dr. Burnham's book. His account of "The Conditioned Reflex" is very clear, and the conclusions he draws from this scientific fact are valuable for all students, teachers and parents. His chapters, too, on "The School Task," "The Social Task," and "The Mental Attitudes" are stimulating reading. To each of the twenty-one chapters of the book is appended a comprehensive bibliography. That which is appended to the concluding chapter consists of twenty-nine books, scientific papers, etc., including Dr. Stanley Hall's two volumes on "Adolescence," Meumann's "Psychology of Learning," and Watson's "Psychology from the Standpoint of a Behaviourist." Dr. Burnham has added the following note to this bibliography : "These books are recommended as preparatory and supplementary to the reading of this volume." For future editions of "The Normal Mind," I venture to offer two suggestions :—(1) That the present "final" bibliography and Dr. Burnham's note be printed at the beginning of the book ; and (2) that the word "preparatory" in the note be printed in block capitals for emphasis.

H.A.S.W.

**French Poems of To-day** : de V. Payen-Payne and Isabelle H. Clarke. (Sidgwick and Jackson. 5s. School Edition, 3s. 6d. xvi+240 pp.)

This is an excellent and much-needed anthology of contemporary verse. There are brief biographical notices of all the fifty-three poets represented, and the work of selection has been admirably done. As stated in the introduction, "to the young the work of to-day is often more interesting than that of a century ago," and it is to be hoped that examiners will, before long, take account of this fact. There will, however, be no need to make of this a set book in any syllabus to ensure for it a place on the bookshelves of young as well as of old lovers of literature.

**Music for Children:** First Steps in Appreciation: by M. Storr, assisted in Part II by A. E. F. Dickinson. (Sidgwick and Jackson. Pp. xii. + 195. 6s.)

When the writers on musical education can be numbered on the fingers of one hand, any addition to their number is to be welcomed, especially where, as in the present case, the new-comer is a "non-professional." Lest this statement should prove misleading, let it be said that, though in the realm of music Miss Storr—to use one of her own metaphors—modestly claims but the status of the "gardener's boy, cultivating his patch behind the tool shed," yet in the world of education she has the knowledge of psychology and the experience of teaching which enables her to speak with some authority.

The present work is the result of nine years' observation and experiment in the teaching of elementary school children between the ages of 5—14, and is intended as a spur to the trained musician and as a guide to the general teacher—with a strong bias in favour of the latter.

Part I contains much that is suggestive and of much value to musician and teacher alike, for here are set out the psychological principles underlying the child's approach to the elements of music (rhythm, melody, harmony, form), together with suggestions for work and a scheme for children from 6—14.

Though she repudiates, and rightly, too, the "inhibition" exercise (for attention and control), the insistence laid on improvised music and various other things dear to the Dalcroze heart, in the main she has followed Dalcroze and based her work on the elements of his system of rhythmic movement. Consequently the work betrays the same defects as that system, not only in the failure to recognize the importance of purely physical training where the body is to be used as an instrument of music, but more particularly in the isolation and over-insistence of rhythm over all other aspects of music. Melody in particular is here treated in rather cavalier fashion, ear-training in pitch being reduced to "memorization of sounds, starting from middle C" (*i.e.*, training in absolute pitch). It is true that others, notably Stewart Macpherson and Ernest Read, have done splendid work in the training of the sense of relative pitch, but it is equally true that theirs is the first rather than the last word on that subject, and that no book dealing with musical education is complete without some reference to this important branch of music training.

Space for it could have been found by the elimination of much of Part II, which consists of cold analyses of the form and chord sequences of hymns and songs; Schumann's "Album for the Young"; and of movements from Bach, Beethoven, and Mozart—this last the contribution of A. E. F. Dickinson. This section has little interest for the musician—scarcely two of whom agree upon the principles, much less the details of formal analysis—and is a real danger to the teacher, for in "the path of learning which should have no end," it provides a short cut that is also a blind alley, and is in contradiction to that general principle of method that people "should discover as much as possible for themselves."

Much arduous work has gone to the preparation of Part III, with its long lists of music graded for children of different ages and for different purposes, its books of reference and study on all branches of music, its addresses of publishers. This is a very valuable part of the work, and every teacher should possess a copy of the book if only for the sake of this list.

The print, music-type and diagrams are all exceedingly pleasing and clear, but one or two misprints in Part III might well be remedied in later editions. E.M.V.F.

**Action Poems and Plays for Children:** by Nora Archibald Smith. (Harrap. 5s. net. Pp. 169).

This is an attractive volume. The black and white illustrations are delightful, especially those of "The Giant's Shoe" and "The Babes in the Wood." The book is primarily designed to obviate the necessity of long and tiresome rehearsals: one child reads the story told in verse, while the others illustrate the action. Old favourites, such as "Little Jack Horner" and "Jack and the Beanstalk," are given with variations, which may, or may not be, acceptable to little children.

"Children of the Mayflower," reminiscent of "Evangeline," is the most ambitious play in the book; this has more educational value than, for example, "Bluebeard in Verse" or "School-bell Fever." The last three plays in the volume should appeal to quite young children, particularly for production in their own homes. Much care and thought have been given to notes and directions on staging and costume.

E. W.

**Fundamentals of Pedagogy : a Text-book for Catholic Teachers :** by Rev. James Higgins. (The Macmillan Co. Pp. 256+ Bibliography and Index. 7s. 6d. net.)

Catholic Teachers have waited a long time for a work on Pedagogy which could be guaranteed as being safe for adoption in these days when so many books are held suspect by the Church on the grounds that they are materialistic in tone or subversive of Faith or Morals, and, therefore, unfit to place in the hands of young teachers, much of whose professional reading has to be done without the advantages of reference to well-informed Christian educationists for guidance. It would be invaluable if a Catholic would review existing works on educational psychology and point out what is sound and what misleading in the expressions of those who do not write from a deliberately-chosen Catholic standpoint ; but this has yet to be done. Father Higgins has based "The Fundamentals" upon an excellent plan ; he deals with many aspects of pedagogy by means of chapters, short, for the most part, followed by questions and lists of references to books for further reading. The lists are comprehensive, although there are one or two curious omissions and inclusions for which it is difficult to account ; the text shows signs of the high intentions of a worthy priest but is put together in an unattractive manner which is suggestive of notes upon rather discursive lectures. There is insufficient treatment of heredity, instinct and freewill ; it should be recognized that these are the topics which cause much trouble to Catholic teachers. The author refers to instincts and the use the teacher should make of them, but he stops at that, leaving undeveloped the means whereby they become of social and religious value. William James does better than this in the "Talks to Teachers." Instinct in man is a fact to be faced, and considering the materialistic and mechanistic theories current nowadays the greatest service a priest could render to earnest and struggling Catholic teachers would be to give them a clear lead in the matter. A mere list, such as that on page 67, will not help them. A modern writer should try to avoid confusion in the employment of terms—"interest" appears to have quite a different significance on pp. 124 and 144 from that it has on page 106 ; "feeling" has also caused trouble (page 106). The discussion of "apperception" contrives just those very pitfalls the author should have filled in, and, incidentally, what an opportunity has been missed for hammering "mechanism!" Again, there are many forms of imagery besides visual, all with potentialities for the educator ; the importance of constructive imagination could have been more usefully developed.

The study of the will is one of infinite concern to the teacher and Catholic pedagogy is closely concerned with standards of right and wrong. How are we to approach the task of forming good characters ? There is no need to talk about the ideal strong characters for good, let us remember there are *strong bad* characters among the combinations that can be made of "strong," "weak," "good," and "bad" taken in pairs, and the teacher is concerned with all these and some others. At least one of the author's co-religionists has laid down "The Fundamental of Pedagogy" with feeling that it has not cleared the ground for those whose rough ways it set out to make plain.

A.P.B.

**A Short History of French Literature :** by Maxwell A. Smith. (Harrap. 7s. 6d. vii+390 pp.)

The author tells us that this book is intended mainly for the American college student who is taking his first "survey" course in French literature, and that he is of the opinion that for most students "there is a distinct advantage in a text-book written in their own tongue." Books of this type will, no doubt, be necessary as long as the student has to "mug up" the opinions of other people upon works which he has not time to read for himself. Otherwise, most of these short histories could be replaced by some such chronological table as exists at the end of Lanson's longer work, accompanied by a good bibliography for each period, such as is to be found at the end of Professor Smith's book. Surely it is time for educators to admit the viciousness of the practice of giving to their pupils books in which nearly every page bristles with æsthetic judgments, wholly unsubstantiated owing to limitations of space, and to which these pupils generally refer before reading the works concerned. Although on these grounds we protest against the use of this kind of book for a "first survey," the subject-matter is interesting, and the criticism for the most part sound ; but the style at times is regrettably slip-shod. As the author claims, the last chapters, dealing with contemporary literature, will be especially useful. K. E. C.

**Grammar and the Use of Words :** by Arnold Smith. (Methuen and Co. Pp. xi. + 170.)

Mr. Arnold Smith has selected his material admirably. His book contains all the grammatical knowledge which may reasonably be expected from a boy at school, and provides a solid foundation for learning the grammar of a foreign tongue. His chapters on "Grammatical Irregularities" and on "Punctuation," seem to us excellent innovations; they gather together in compact form many difficulties which are rarely treated as a single problem. Somewhat more questionable are the chapters on "The History of the Language" and on "Sounds and Symbols"; Philology and Phonetics are vast subjects which it is almost ludicrous to dismiss in a few pages. Part II, which deals with "The Use and Misuse of Words," will provide a relief from the routine of ordinary grammatical work and will best be used as a companion rather than a conclusion to Part I. Practising teachers would probably welcome a far more generous allowance of exercises throughout the book.

The informing thought of this grammar is evidently that language is a living rather than a static thing. This idea, while unimpeachable in itself, unfortunately leads Mr. Smith to support the usages of ordinary speech when they are obviously incorrect and as yet not definitely sanctioned by time. We cannot agree that, in comparing two things, the superlative is so frequently used that it must be deemed as "equally correct" as the comparative. We would contend that such superlatives are bad grammar because they are the result of the vague thinking which Mr. Smith so rightly condemns as among the "worst sins against good English."

One great disappointment in this book is Mr. Smith's complete disregard of what seems to us the basis of all grammatical work, viz., that language is the expression of man's thought, and that, therefore, grammar, which deals with language, is a statement of the laws which man unconsciously follows when expressing himself in speech. This is the only justification for the modern method of beginning grammar with the sentence and its logical division into subject and predicate. From this the eight parts of speech can be developed naturally by showing that, in the making of sentences, words can fill eight different functions, to which certain grammatical names are given. But Mr. Smith's treatment of the parts of speech has not the slightest connection with his introductory division of a sentence into its two parts. We might with justice accuse him of talking of nouns, pronouns, etc., as if they were the invention of the grammarian and had no logical significance in the world of ideas. The same weakness is apparent in his treatment of case, which seems to us a grammatical idea independent of inflection which may *mark* a case but cannot *make* it.

Like all modern grammars this book suggest most interesting problems, and shows clearly that there is urgent need for some definite ideas about what school grammar is and how it should be taught. At present, there is no common ground for grammar teaching in schools on which the grammarian and the teacher can alike rely.

A.C.

**The Story of England :** by M. O. Davis. (Published 1924. Oxford : Clarendon Press. 3s. 6d.)

We can confidently recommend this book for "individual study" in the upper standards. Good illustrations, comprising hitherto unused contemporary pictures and literary quotations and clear useful maps, make it suitable no less than the fresh and vivid touches which adorn the actual story-telling. Human touches and anecdotes abound. But we regret that the reign remains the unit. The story is that of England's sovereigns rather than of England. The Labour Party justly ask us to stress the lot of the people. We need a school history, written fairly and convincingly which will correct current fallacies. If we are to make the world "safe for democracy" the voters of to-morrow must realize that not only have many sought in the past to create ideal Commonwealths, but that their relative failure does not mean that these efforts have no importance in the story of human development. Also, they must learn that the evolution of human society, like that of biological forms, cannot be hurried. Perhaps the most salutary lesson of all is that peoples have the governments they deserve.

In the meanwhile, training college students should be given the opportunity to note that the "Story of England" is excellent value in view of the high quality of the work that distinguishes the publications of the Oxford Clarendon Press.

M. F. W.

**An Essay Towards a Philosophy of Education :** by Charlotte M. Mason. (Kegan Paul. Pp. xxxi+360. 10s. 6d.)

This essay was written by Miss Mason during the last years of her life, and has now been published by her trustees. It sums up the teaching of her earlier volumes, and is the most systematic statement she has left us of the educational gospel which through long years of physical weakness she preached by word and deed. We shall not do justice to the book unless we read it as a prophetic utterance rather than as a philosophical or scientific treatise. For this reason the second title, "A Liberal Education for All," seems more appropriate than the one which now stands first.

Miss Mason was of the company of true teachers whose love for children opened their eyes to the real meaning of education, and who help us to see the supreme importance for us as individuals and as a nation of giving the right kind of education to all irrespective of ability or class. Such teachers have always felt a reverence for children so often lacking in the mere instructor, and Miss Mason's book is attractive partly because this respect for children as human persons finds unforced expression on nearly every page. Again, Miss Mason has the power of rending the veil of conventional assumptions and methods in education, and of showing us the vital issues which are at stake. She expatiates, for instance, in a delightful way upon the current tendency to exalt the teacher, and to feed children upon appropriate mental "sweetmeats." Her freshness of insight and vigour of expression are as striking in this volume as in her earlier writings. We feel that she possessed that rare type of common sense which enabled her clearly to envisage obvious facts which most of us tend to overlook. And what she saw clearly she laboured with all her heart to make evident to others.

The main value of Miss Mason's book, therefore, appears to me to be that it disturbs our lazy acceptance of conventional ideas, and infects us in some degree with her wise enthusiasm for education. As a treatise on educational theory I confess I find it disappointing. Other readers may be more successful, but I have been unable to find any general philosophical basis for the views which she develops. Her psychology, she tells us, was derived from Dr. Ward's classical article in the "Encyclopædia Britannica," but I cannot think that she made a serious study even of that article. Nor are her detailed recommendations much more satisfactory than her theories. One of the things she saw most clearly was that children ought to read good books, and by insisting on this truth she called attention to a great weakness of our so-called education. But to proclaim the reading of stated portions of selected authors as the one and only method of education is to convert an inspiring idea into a hidebound rule. Other examples might be given of Miss Mason's failure to appreciate methods other than her own. But her book would be less interesting if it were less provocative, and while it will appeal more particularly to her disciples, it will, I hope, find readers who without accepting all its conclusions will gain stimulus and enlightenment from its sincerity and enthusiasm.

H.B.S.

**Business Organization :** by L. R. Dicksee. (New Edition. London : Longmans, Green and Co. 1924. Pp. x+283. 6/-).

This work, by the Professor of Accounting and Business Methods in the London School of Economics, is based on a course of lectures delivered in 1909 at a time when the "points of contact between academical study and actual business" were neither as close nor as intimate as they have since become. One consequence of this is the inclusion of topics such as Stock Exchange practice and the organization of credits which are now with greater propriety discussed in texts specifically devoted to finance, and the omission of certain other topics, such as business statistics and modern advertising methods, which have attained importance since the appearance of the first edition.

Probably, however, notwithstanding additions to Faculties of Commerce in English Universities, and the increase in the number of teachers whose duty it is to lecture on the subject, it is not desirable to insist on an exact definition of the contents of business organization. The dividing line between trade and industry is difficult to draw, and Professor Dicksee could, no doubt, defend the appearance of a discussion of the remuneration of workmen in a book primarily concerning commerce.

A wonderful amount of information has been compressed into a comparatively small volume. The work is one that ought to be on the shelves of every student of modern business conditions.

J. G. S.

**A Grammar of Spoken English :** by H. E. Palmer, etc., etc. (Heffers, of Cambridge. Pp. xxxvi+293. 12s. 6d.).

This grammar, which has been eagerly awaited by those who have read Mr. Palmer's other books on the principles of language study, will be of great value to all who are interested in the development of linguistics.

It may be considered the most important contribution to the elucidation of "The Grammar of Usage" since Sweet's "New English Grammar."

There has been a long-felt need for such a book as this to deal with the grammar of the spoken language on a sound and strictly phonetic basis. It will be heartily welcomed by "foreign adult students of English who are already able to understand written English and by all teachers of English who serve as the medium of instruction in living speech," for whose use it is chiefly, but not exclusively, intended.

In the important Introduction, Mr. Palmer defines the term "spoken English," for the purposes of this book, as "that variety of English which is generally used by educated English people (more especially in the South of England) in the course of ordinary conversation or when writing letters to intimate friends." The only standard he acknowledges is the standard of usage.

In this section he also develops his conception of the chief functions of a grammar and of the uses to which it may be put.

Part I deals with "phenomena conveniently treated under the heading of phonetics," in which the author proves that phenomena of stress, "weakening," and intonation are essentially part of the grammar of the living language. The student is given actual lists of words having weak forms, and definite rules as to their use, which are illustrated by numerous examples in phonetic and tonetic transcription. Similar word-lists and examples are provided throughout the book.

Part II is concerned with "parts of speech." While keeping, in general, to the terminology recommended by the committee on grammatical terminology, Mr. Palmer introduces certain new categories or groupings of words, such as the very important one of the "24 anomalous finites," in which he finds the key to the solution of several intricate grammatical problems. His approach to the subject is thoroughly modern and unprejudiced.

To illustrate "parts of the sentence" (Part III) he makes use of substitution tables, a grammatical device well suited to the purpose, and one with which many of his readers will be already familiar. These tables, in addition to illustrating the text, supply the student or teacher with the material for practical exercises in sentence-building.

The fourth and last part of this grammar deals with certain "Logical Categories," under such headings as Affirmation, Negation, Time Relations, Totality, Plurality, etc. Under the heading of Time Relations the student will find very helpful information for the use of the verb tenses in English and some fresh light thrown on those bugbears of the foreign student "shall" and "will."

This grammar will doubtless be met with a great deal of criticism, but the unprejudiced reader will be obliged to admit that it constitutes a remarkable achievement and a very serious contribution to the study of modern English. H. M. H.

**Teaching of English in Secondary Schools for Girls :** by Grace H. Bracken. (University of London Press, Ltd. 1924. Pp. xxxi+238. 6/-).

It is the author's declared aim in this book to give some practical help to students in training colleges and those who are beginning to teach. Undoubtedly the novice can learn much from the annals and records of an experienced teacher, and it is therefore to be regretted that the details of Miss Bracken's own experience lie so often concealed beneath the flowers of literary quotation. The author has, indeed, given us a programme and a profession of faith, with which most English specialists would be in substantial agreement, but her exposition is unfortunately marred by frequent ambiguity of phrasing and looseness of syntax.

Mademoiselle Bergeson has contributed a chapter on the teaching of French in a Lycée for girls. As Miss Bracken justly points out, the English teacher has much to learn from a study of French educational methods. In the teaching of the mother tongue French teachers lay stress on those elements most frequently neglected by the teacher of English in England—exactness of thought and clearness of expression. The details given by Mademoiselle Bergeson should prove of value to those who have no opportunity of studying methods at first-hand in French schools. E. M. J.

**Law and Freedom in the School :** by George A. Coe. (The University of Chicago Press. Pp. ix + 133. \$1.75).

It is, perhaps, necessary to remind English readers of the meaning and importance attached by American teachers to the Project method. In Mr. Coe's words, "It is not a tool that our tastes or convenience picks out from several alternatives, but primarily a law of mind and character. . . . I am using the term project in a sense that makes purposing, and particularly purposing together, its distinctive mark. . . . Purposing is nothing less than the process whereby one comes to one's self as a person. Used collectively, it is the democratic process."

Mr. Coe maintains that a child must come to himself by self-effort in a real world, and that schools must no longer allow their scholars to grow up with false beliefs concerning the forces at work in that world. Those forces briefly stated are natural law, the will of society, the will and, ultimately, ideals of the pupil.

Hence the project must be a method of real life and not a simplified and falsified problem that will leave the pupil with a mistaken idea of the society in which he lives. Thus, to allow children to initiate and carry through the project of building hutments in a neighbouring wood without, also, instructing them in the rights of land-holders, would leave them with a misleading idea of the means of solving the housing problem.

Equally does the teacher falsify life who introduces the project method as she might introduce "script." A project must be based on the joint willing of the community; teachers and taught must think, plan, experiment together; and teachers must be as willing to modify their behaviour as a result of the work as the children. Mr. Coe gives an interesting example of a class of children who were studying religious life, and who were so horrified at the behaviour of an adult congregation that the said congregation reformed its ways. So, also, he adds, "it should be a natural and expected occurrence for school children to take their judgments before the Board of Education. What reciprocal illumination would result, and what increased and improved purposefulness all around."

These examples illustrate the main interest of the writer; for though his theme is the project method, his interest therein lies in the fact that he believes in democracy, in the re-fASHIONING of the world that alone can make it possible, a re-fASHIONING that will be more complete and speedy if it is carried through by the young who are morally sensitive and upon whom custom does not lie heavy as lead. This conclusion is based upon a careful and philosophic study of the world as it is and children as they can be.

Mr. Coe can think clearly and dispassionately about a subject on which he feels strongly. He writes well. Not only teachers interested in the project method should read the book; all social workers and reformers would find much to think over in it.

N. C.

**The Great Historians :** by K. N. Bell and G. N. Morgan. (Christophers. Pp. xvi + 349. 5s.)

The purpose of this book is to supply, if not a consecutive account of English history, at least chapters dealing with important movements and great men, selected from leading historians. It may reasonably be expected that to read Gibbons' account of Gregory the Great, Froude's "Protestant Martyrs" and "The English Bible," J. R. Green's "England of Elizabeth," Lecky's "John Wesley"—to select only a few of the seventy-one chapters, will send many a reader to the authority from which the selection is made, with eagerness to know more of his work.

The book should prove a useful supplement for senior pupils in schools and for students in colleges.

**The Crime and Trial of Leopold and Loeb :** by M. McKernan. (Allen and Unwin. 380 pp. 8s. 6d.)

Whatever views may be taken as to the desirability of the publication in detail of such material as is given in this book, it cannot be disputed that it is a very remarkable one. The extraordinary irresponsibility and reckless behaviour of the two youths make their case undoubtedly one the psychologist may give some attention to. The reliability of some of the reports may not be as great as that of others, and the reader will probably feel that the inclusion of photographs, for example, of the accused in court and of their sweethearts, etc., is significant of the journalistic touch prominent in many parts of the book. In fairness, however, to the writer it should be noted that it does not profess to be in any way a systematic psychological discussion of the minds of these two extraordinary youths.

**Broadcast over Britain :** J. C. W. Reith. (Hodder and Stoughton. Pp. 231. 6/-).

After a little over three years of broadcasting, during which time this new form of entertainment has captured the nation's interest, there has been remarkably little matter published dealing with the future policy and working of the B.B.C. At this time, when the B.B.C. is on the eve of constitutional changes, this book, written by the managing director, describes minutely the activities, the ideals attempted, and the future policy of the company.

The book describes the establishing of the chain of stations and the early experimental work in connection with these. The difficulties of maintaining a high standard in the programmes, and the choice of station directors, on whose shoulders a great responsibility must rest, are set forth as two of the greatest problems the company has to face. The suggested monopoly held by British firms contained in the B.B.C. is dealt with very lucidly, the author clearly showing that, to obtain the present standard of efficiency, these manufacturers have hazarded much and benefited little. He then deals with the response and criticism of the people, and of the still drawn-out conflict between the company and the managers of theatres and music-halls. It is, though, in the third section of the work that a few pages are given to outline the educational policy of the B.B.C. With entertainment as its first object, the fact that recently an educational director has been appointed, shows that the company is alive to the need of extension along educational lines. Apart from the lectures and talks to adults in the evening on hygiene, dramatic criticism, and subjects of general interest a syllabus is being arranged for the instruction by wireless of children at school. We feel that Mr. Reith might have extended this portion of the work considerably; he merely awakens our interest and then leaves us wondering what will be the result of this new influence introduced into our educational system. It is clearly stated that education by wireless is intended to supplement rather than to supplant the present teaching in schools. At present only the London station has arranged a complete course of lessons in music, geography, history, and literature to be transmitted daily to schools. It is hoped that this scheme will be extended as soon as possible to the provincial stations. The author states that any extension along these lines can only be done when all schools have really efficient receivers, and at present such a state of affairs seems very remote.

In his conclusion, Mr. Reith dwells upon the idealistic side of wireless, the pioneer spirit and the grappling with ever new problems in the quest of infinite distance.

The book is very readable and the author is to be congratulated on providing a departure from the already vast quantity of purely technical works on wireless, and Messrs. Hodder and Stoughton on the inclusion of this work among their publications.

**Education of Behaviour :** by I. B. Saxby. 2nd Edition. (University of London Press. Pp. 264.)

This is the second edition of Dr. Saxby's book, which deals with the behaviour of young people between the ages of 9 and 17.

The earlier part of Chap. VIII on The Psychology of Character has been re-written. It now contains an exposition of the part played by endocrine glands in the development of the individual and in causing individual differences.

In addition, there is now an acceptable chapter on problems of adolescence, discussion being centred round those arising through sex, friendship, group-membership, and teacher-child relationship. Some of these problems are left unsolved, whilst in other cases lines of solution through modern psychology are suggested.

The concluding chapter is a useful feature, summing-up briefly as it does the more important of the facts established in the course of the book.

F.M.R.

**The Adolescent Problem :** by Elsie White. (London : Watts and Co. Pp. 47. 2s. 6d.)

This little diary of twelve happy months in a day continuation school is a good example of how sound psychology and excellent methods of teaching may be suggested instead of taught. It is at once attractive and stimulating. Perhaps it might be read with advantage by those busy people who make themselves heard at these times on such questions as the raising of the school age or the introduction of a system of continuation schools. Many of them could learn much from even this unpretentious book.

**Psychology and the Sciences** : edited by William Brown, M.D., D.Sc., M.R.C.P. (A. and C. Black, Ltd. Pp. vii. + 184. 7s. 6d. net.)

It was a happy idea of the Reader in Psychology at Oxford to organize a course of lectures on the relation between Psychology and the various sciences, and this volume, which is the record of those lectures, is not only a very readable one, but affords a genuine contribution to the problem of the placing of Psychology amongst the sciences.

Among such excellent contributors it is difficult to discriminate and almost invidious to select for special comment. Personal interest leads me, however, to mention the valuable article by Professor J. S. Haldane on Psychology and Biology. His emphasis upon the concreteness of Psychology as contrasted with the abstractness of the physical sciences is worthy of note, and so is his vigorous protest against the mechanistic interpretations of Biology and through that of Psychology. Dr. Schiller's "Psychology and Logic" makes delightful reading, as one would expect, and leaves a goodly number of skittles lying on the floor. His appeal to psychologists and logicians to come into closer contact, and particularly his appeal to the logicians to recognize the impossibility of ignoring psychology in dealing with their own problems, give food for much thought. Principal Jacks contributes a wise and broad treatment of the relation between Psychology and Ethics, and Dr. Keatinge writes with his usual penetration on the relation between Psychology and Education. Dr. Brown lectures on "Psychology and Medicine," and the remaining lectures are Dr. Marett's on "Psychology and Anthropology," and Dr. Mitchell's discussion of "Psychology and Psychical Research."

In brief, the book may be heartily recommended as a very suggestive one, and one which is bound to broaden the reader's conception of the foundations of Psychology.

C. W. V.

**Parent or Pedagogue** : by Esmé Wingfield Stratford, D.Sc., M.A. (Herbert Jenkins. 7s. 6d. Pp. 320.)

A book for the few, for fathers who can discover the names of "every flower and tree and butterfly," for mothers whose love is "enlightened, just, and unselfish," for the wife who is in command of "her own staff" (although her husband may be only a humble understrapper in somebody else's business !)

Assuming that "the mother has got to have help in the bringing-up of her children," as the author, Dr. Wingfield-Stratford, admits, what is the best kind of help? Having had considerable experience both as parent and teacher, the writer of this brief review ventures to affirm that the trained child-specialist can help the mother in the most vital and permanent way.

Miss Kitcat, the "social derelict" type of governess, and other bogeys, have largely gone the way of the wet nurse." The methods suggested by the author, too, especially for the three "R's," are very similar to those followed in kindergarten schools.

With the author's insistence on the paramount value of example, the need for self-culture and self-restraint, for tact and sympathy in all relations, one is entirely in agreement, and on these points particularly the book should be helpful to both parent and pedagogue.

L. A.

**A Test of High-School Chemistry** : Henry Lester Gerry.

(Humphrey Milford. pp. 82. 3s. 6d. net.)

This short work represents in a condensed form a thesis presented for the degree of Doctor of Education in the University of Harvard. The aim of the author is to establish an objective standard of achievement in chemical knowledge which may be used to supplement the results obtained from oral questioning or written examination. The work includes a discussion of the purposes to be served by such a test and reviews the principles which were employed in the selection of suitable material and the determination of norms. In the author's opinion the task is none too easy in connection with a "content" subject like Chemistry, in which the results of teaching are determined very largely by the memory of facts and only in part by the ability to use facts in a new situation. In this instance it is accomplished with characteristic American enthusiasm for statistical detail; if the work possesses no other virtue, it at least emphasizes the seriousness with which the teaching of Science in general, and of Chemistry in particular, is regarded in the United States.

N. C. W.

**Skill in Work and Play :** by T. H. Pear. (Methuen and Co., Ltd., London. Pp. 104. 4s. net.)

Professor Pear's aim has been "to focus clearly and to describe simply the most important problems in the acquisition of muscular or bodily skill."

Considering the intricacy of the subject and the size of the book, he succeeds in putting many problems of learning more clearly than is generally done.

There is a recognized difficulty in communicating skill to others, and this the author believes is in part, at least, due to the deficiencies of terms suitable to describe rapid bodily movements.

The wisdom of the inclusion of the "curves" on page 48 is questionable. They lend themselves to misinterpretation and sufficient space has not been given to explain them satisfactorily.

In the last two chapters the question of Training and Education, and Training in Industry, are treated. The question of transference of training is discussed, and doubt expressed as to whether there is much unconscious transference.

In all probability this book will not as a unity be approved wholeheartedly either by the "scientific" or by the "popular" reader, though each will find parts of much interest.

F.M.R.

**The Humanizing of Knowledge :** by J. H. Robinson. (Hodder and Stoughton, Ltd. Pp. 117+ix. 5s.)

Knowledge, especially scientific knowledge, the writer urges, must be humanized. He considers that the whole substance and aims and methods of education need a thorough overhauling, but that those desirous of humanizing scientific knowledge will hardly attempt to lay siege directly to institutions of learning. He sees hope of adult education offering an opening, and refers to Workers' Associations and to a series of volumes, the "Workers' Bookshelf," which has been planned and issued under the auspices of a committee of the Workers' Education Bureau. The books are to be written by scientists in America and abroad.

This is the third volume of the series.

F.M.R.

**Twenty-five Years of American Education :** edited by I. L. Kandel, Ph.D. (Macmillan. Pp. 469+xvi. 10s. 6d. net.)

This collection of essays summarizes the achievements in American education during the past twenty-five years. It is edited by the Professor of Education of Teachers' College, Columbia, and written by former students of Dr. Paul Monroe, to whom the book is a tribute in recognition of his educational work.

A survey of the historical background is given, showing how with rapidly-increasing complexity of economic and social conditions there came a persistent effort to make the school an efficient agency of social development and control.

One of the effects of the absence of a centralized authority has been the great variation in educational progress throughout the country, accompanied by a great opportunity for initiative and experiment. The following list of topics, University Study of Education, Educational Philosophy, Educational Psychology, Method, Administration, Finance, Vocational Education, Exceptional Children, Education of Women, though not complete, gives some idea of the scope of the work.

There is an extensive list of books of reference, and adequate index. In addition to being of great interest from the viewpoint of development, this book should prove invaluable for reference.

F.M.R.

**Working-class Education :** by J. F. and Winifred Horrabin. (London : The Labour Publishing Co., Ltd. Pp. 93. Cloth, 2s. 6d. ; Paper, 1s.)

Those people who are actively engaged in adult education cannot rest content to be ignorant of the history of the movements in favour of the extension of educational facilities to the workers; nor of the interpretation placed upon these past and present endeavours by the Plebs. This little book is frankly partisan in that it endeavours to give this latter point of view. The chapters deal, in an interesting manner, with "The Pioneers, 1789-1848"; "The Philanthropists, 1848-1908"; "The Proletarians, 1908-1924"; "The Present-day Position"; "The Aims and Methods of Working-class Education."

One is thankful to the writers for giving us this frank expression of their opinions. One hopes, however, that the Englishman's love of compromise may soon prove acceptable even to such ardent but partisan enthusiasts as the writers. E.C.C.

**Life : an Introduction to the Study of Biology** : by Sir A. E. Shipley. (Cambridge University Press. Pp. 204+xvi. 6s. net.)

**Cambridge Readings in the Literature of Science** : arranged by W. C. D. Whetham and Margaret Dampier Whetham. (Cambridge University Press. Pp. 275+x. 7s. 6d. net.)

**Matter and Change : an Introduction to Physical and Chemical Science** : by W. C. D. Whetham. (Cambridge University Press. Pp. 280+vi. 7s. 6d. net.)

Students and teachers of science are fortunate in being able to choose such books as these.

The first delightfully written and illustrated, succeeds in achieving the aim of the writer, viz., "to emphasize the unity of life, whether it be plant-life or animal-life, and the interrelation of living organisms one with another and with their surroundings." It is just the volume to put into the hands of Sixth Form boys or Training College students who have realized the need for some knowledge of biology. Teachers of the physical sciences might well place a copy of this book on their own desks and another copy should be available for their students.

The second is a fit companion to the first. It is divided into three sections, dealing respectively with Cosmogony, Atomic Theories, and The Theory of Evolution. The extracts in each section are well chosen "from the writings of men of science to illustrate the development of scientific thought." The book is a real contribution to the humanistic teaching of science.

Mr. Whetham is well known as an able writer of text-books dealing with various branches of physics. In this book, the companion volume to Sir Arthur Shipley's, he has tried to give "a short and simple statement of the methods and results of modern physical and chemical science." It is designed both as an introduction to deeper study and "for the upper non-scientific classes of schools and for the general reader." It is not easy reading in some parts, and suffers, as such books are almost bound to do, from over-compression.

The Cambridge University Press is to be congratulated on publishing these three volumes, for they meet, in their respective ways, a real need in our secondary schools and colleges.

E.C.C.

**The Groundwork of Teaching** : edited by A. Mackie. (Teachers' College Press and Angus and Robertson, Sydney, N.S.W. Pp. 240.)

This book contains twelve chapters, prepared to serve as an introduction to the study of teaching, and written by members of the staff of the Teachers' College of New South Wales.

Due attention is paid to the general principles and problems of teaching, as well as to the more specific study of the teaching procedure in different types of lessons.

Professor Mackie has added, in this, the second edition, a chapter on "The Study of Education," in which he makes a survey of those branches of educational science to which measurement has been most successfully applied. He considers problems of the administrator and of the teacher, and concludes with a plea for greatly extended research in education. "Advance in educational practice," he urges, "cannot be divorced from scientific research."

Chapter XII also is new. It is written by Dr. Cole, and deals with the principles of the Kindergarten.

This book is useful not only for students taking up a study of education, but also to their teachers.

The absence of an index and of a complete bibliography is unfortunate. F.M.R.

**Everyday Physics** : by H. E. Hadley. (London : Macmillan and Co. Pp. 474+ viii. 6s. 6d.)

Mr. Hadley is an extremely well-known writer of school text-books in Physics. This volume is designed to "provide a course of work in General Physics which, while following the order and method of treatment commonly adopted in secondary schools, will bring the subject into contact with everyday life by means of descriptions of practical applications of facts and principles studied in the laboratory and class-room." The book well maintains the standard that one has been led to expect of Mr. Hadley, but its value might have been much enhanced had the writer been less conservative in choice and arrangement of material.

## BOOK REVIEWS

**The Oxford Economic Atlas :** J. G. Bartholomew, with an introduction by L. W. Lyde. (6th edition revised. 6s. Clarendon Press. pp. xii+64.)

This well known atlas hardly needs further description. It is full of information, displayed in charts that excel in clearness, the essentials standing out prominently. The maps are beautifully printed and in every way the atlas is one to be recommended.

**Modern Inorganic Chemistry :** J. W. Mellor. (Longmans. New Edition, 1925. Pp. xx.+1103. 12s. 6d. net.)

This excellent text-book, having passed through several reprints of its first edition, now appears in a new edition considerably enlarged and in many parts re-written. It needs no commendation to the student or teacher of chemistry who does not desire merely a catalogue of chemical facts or a discussion of chemical theory, but who also values the abundant references to the history and philosophy of the subject. The work is a veritable mine of information and apt quotation; and its introductory chapter is invaluable as an exposition of the true "scientific method." It is a matter for regret that in a book which in wealth of illustrations and selection of test questions leaves nothing to be desired, a number of rather serious misprints found in the original still survive in the revised edition.

N. C. W.

# The Forum of Education

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## BOOK REVIEWS.

## THE FORUM OF EDUCATION.

Edited by

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Professor of Education, University of Birmingham,  
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# The Forum of Education.

Vol. III, No. 3.

November, 1925.

## The Disciplinary Value of School Subjects.

I.

By R. L. ARCHER.<sup>1</sup>

TEN years ago this was, perhaps, the subject most commonly discussed at educational meetings ; the volume of literature on it was enormous. But it can hardly be claimed that any accepted conclusions were reached ; indeed, the topic may be said to have collapsed through its own weight. In these circumstances, it is worth asking whether the absence of an answer may not point to the impossibility of giving one. May it not be that the problem was stated in such a way as to involve unreal assumptions and that it is necessary to withdraw from a frontal attack and *solvere ambulando* ? This view is, I fancy, suggesting itself more frequently now that our conception of general ability has led to the abandonment of the atomistic conception on which most of the discussion on formal training proceeded.

The orthodox theory of ten years ago was due to a reaction—a reaction not against the common-sense theory that, as we learn to shoot by shooting and to swim by swimming, so we learn to reason by reasoning, so much as against the elaborate theory worked out in the seventeenth century by the French philosopher-mathematicians—the Rationalist theory. By a strange perversion of history, formal training has come to be associated with the adherents of classics, who, in common with everyone else, supported their subject on this basis in the nineteenth century, whereas it was really the creation of the school of Descartes, especially of Malebranche. Preliminary hints of a special value attaching to mathematics in the training of the reason can be found earlier in England—e.g., in Mulcaster ; but it was John Locke, the English interpreter of French educational theory, who made it a part of the accepted tenets of the eighteenth century in this country, and the contrast between Latin, which is learned entirely by “use and wont” and from which everything which might exercise the child in framing hypotheses is excluded, and mathematics, to which is assigned a value in training the reason to work on all other subjects, is too obvious to admit of dispute. The theory of formal training was part of a greater whole, of that wonderful attempt to counter the infallibility of the Church by an infallibility of the individual reason which, on its attempt to get round the time-honoured truth that

<sup>1</sup> A paper read at the Meeting of the British Association for the Advancement of Science, Southampton, September, 1925.

*humanum est errare*, worked out a fantastic psychology and ethics of which the chief elements were :—

- That all human minds are at birth exactly similar ;
- That all hereditary influences may, therefore, be ignored ;
- That all effects of feeling are harmful ;
- That only one instinctive tendency is good, viz., that we all seek our own good when we recognize it ;
- That all intellectual and moral faults are due to failure to see that certain consequences follow from certain acts or premises ;
- That a correction of the intellect will, therefore, render all men perfectly moral ;
- That this correction is concerned with one point only, the seeing the relation of the conclusions of a syllogism to its premises ;
- That this one point is a matter merely of practice ;
- That this practice can only adequately be obtained by studying mathematics.

For a hundred years after Descartes, the Reign of Reason prevailed. Mathematics became the type of all reasoning, and a series of deductive philosophies was put forward one after another from Descartes to Hegel.

It is to be noticed that “ reason,” as conceived by this school, was as near to being a single function as any process could well be. Its founders are not open to the charge of having grouped a number of processes together under one name and assumed, in consequence, that the training of one was the training of each of the others. They did not admit that a different kind of reasoning was needed in different subjects. It was only when their system as a whole vanished, but their modes of speaking survived, that this result came about. It was then, too, that we were presented with a multitude of other “ faculties,” each to be trained by a separate subject, and that education came to be conceived as a “ harmonious training of all the faculties.”

It is difficult to say when the faculty theory in this later post-Rationalist sense died. Huxley’s claim for the teaching of science that “ all scientific method is one ” brings it far down towards the end of the nineteenth century. The trouble was not with its death but with its burial. The common-sense schoolmaster clung to it because without it education seemed to sink into the acquiring of information, and because he saw that somehow, whatever the true psychological explanation might be, soft options were not able to produce thinking men. But soft options were becoming popular, especially in America, and a post-mortem on the theory to prove that it really was dead was considered necessary in order to convict the head masters—classical head masters were still in a majority, and against them the attack was specially directed—of unthinking obscurantism, anti-psychological bias, and lamentable ignorance. Unfortunately, the corpse gave several powerful kicks during the post-mortem.

At the risk of being irksome, I feel compelled to state the theory put forward by the school of Thorndike, together with its implications—the parts of the theory which are usually “ taken as read ”—since it is

largely in these implications that the assumptions are made which render it so hard to solve the problem as it is stated by what we may call the Atomist school.

- (1) The effect of experience on future thought, feeling and action is stored in two ways only :—
  - (a) In a tendency of certain thoughts to enter consciousness or to occupy the focus of consciousness, the resulting effects being then mediated by the further action of consciousness, and thus being variable ;
  - (b) In the unconscious action of certain specific “functions” or “habits,” of which we each possess a large but finite number, each of which, when once the button is touched, operates mechanically and invariably.
- (2) Though an act may be the joint product of several “functions,” yet each function has been separately acquired, it is set in operation only by one exactly similar stimulus, it produces one exactly similar response, and it is totally uninfluenced by any other function.
- (3) Though two or more functions may frequently operate together, yet each operates in precisely the same manner, whether it is working in isolation or in any combination whatever—*i.e.*, the combinations are mechanical and not chemical. Transfer is, therefore, merely a way of stating that a function which has previously operated in a certain manner along with certain other functions is now operating in a precisely similar manner along with a new set of other functions.
- (4) As soon as a function has become habitual, consciousness is confined to receiving the stimulus and to awareness of the reaction, but has no share in producing the reaction, even where the reaction is itself a conscious state—*e.g.*, an estimate of the size of a square.
- (5) Feeling is in its nature conscious, and, therefore, does not enter into unconscious functioning.
- (6) “Functions” are ultimate units and not further divisible.

It is hard to see where any scope for experimental enquiry is left. If an experiment happens to prove that practice in one activity results in better performance in another, the theory is left untouched ; all that it is necessary to assume is a “common function.” So-called transfer will merely depend on the fact that, to use a chemical expression, “functions are not ordinarily found free in Nature”—*i.e.*, we have to practise them in combination, but a function which we have practised in one combination frequently turns up in another. But, if our aim be to cultivate a particular combination, it will be best to do so directly, since then we shall not be obliged to practise redundant functions and can make sure that we are practising all the necessary ones.

Long ago Dr. Cyril Burt pointed out that the theory could not be regarded as complete until it was in a position not only to state its laws but to explain them, and that this explanation must be on physiological

lines. I am, however, disposed to think that some of the popularity of the Atomist theory depended on the ease with which it could be explained in current neurographic terms: each function corresponded to a nervous arc along which resistance had been broken down, and no difference whatever in the current which could pass along that arc had to be assumed. Invariability of response greatly aids the conception of psychological processes as a kind of enormous railway system entirely explicable in terms of setting the points.

The line on which I propose to attack the theory is fundamental. It is no question of modification. I deny, and I think, once stated in this form, there would be no one in the present state of psychology who would not deny the implicit assumption that variability is a proof of the operation of consciousness, or, in other words, that the effects of experience are stored either in the form of general dispositions which can only operate through setting up conscious processes or in the form of mechanical habits. The opposite of this theory declares that there is no operation of consciousness which has not its subconscious counterpart. Would anyone now deny this?

First, reasoning appears to have its subconscious counterpart. Long ago James pointed out how, after we have collected the evidence, we often sleep on it, and the conclusion comes without an effort.

The same is true of feeling. We find actions decided by prejudices which we are unaware are influencing us. A certain thought if it occurred would provoke an emotion of annoyance: the thought does not occur, yet the unconscious disposition which would provoke the annoyance influences us in choosing our line of action without the occurrence of the emotion.

If there is anything which used to be considered the special province of consciousness it was decision. Sense-impressions were supposed to pour into consciousness and the operator, stationed in the higher part of the brain, which is associated with consciousness, manipulated the switches, which directed the currents, some along channels which resulted in immediate action, some along channels which resulted in thought, and some into a limbo where they were forgotten. Psycho-analysis has now its unconscious "censor" who does exactly the same thing; and, like most other principles which psycho-analysis has popularized, I believe this to be merely an extreme case of what is taking place in us normally and healthily at every moment.

Decisions might, however, be conceived as purely mechanical—*i.e.*, as merely bringing precedents to bear on similar cases, though, if they result from the subconscious analogues of reasoning and feeling, this would be far from being the case. But there seems to be something further. I suggested for it (about ten years ago) the name of "the subconscious recognition of similarity," and it is much more likely to be accepted now than it was then. It is a kind of sub-conscious analysis, which may even claim to be the most far-reaching determinant of mental life. Only in a strict syllogistic argument does the whole logical process go on before the footlights. Any practical course of action or any scientific theory of an inductive kind wells up to consciousness from below, and it is only subsequent thought which arises mainly when we wish to prove it to others that enables us to make clear to consciousness the inter-

mediate steps which led us to accept it. If the sub-conscious process has been sound, these intermediate steps will be acts of recognizing analogies and acts of classification. The exponents of further factors in general ability besides the original *g* find the explanation of genius in a specially high degree of this power. If the process could possibly be stated in neurographic terms, we should have to say that in the case of a genius a piece of knowledge starts currents which race round the whole neurography to find anything therein stored which is analogous to itself, whereas in an ordinary man these currents are weak and only reach a small part of his neurography. Thus, in Newton, the thought of lunar movements set up currents which discovered in his nervous system those stores of information concerning the movements of falling bodies on earth which everyone possesses, but in which no one before him had recognized a similarity to the movements of the moon. Indeed, how his sub-consciousness could have discovered the similarity of two sets of facts which had never been associated by contiguity was so great a marvel to the plain man that he had to invent an apple in order to introduce an accidental contiguity and thereby to deprive Newton of his claim to genius. In the ordinary affairs of life such recognitions of similarity generally lead direct to action without any consciousness that they have taken place. This we call tact. It is in this way that a teacher deals with individuals in his class, for he is not aware what particular items in his experience are guiding him.

A sub-consciousness which can analyse a situation, can discover its analogies in past experience, can be affected by past feelings, can make inferences and can come to decisions is a very different thing from one which is limited to a set number of tricks, however numerous, each mechanically performed on the touching of the right button.

Of course, I am not denying the existence of functions of the mechanical type: we all have plenty of them. Some of them, such as walking, we are habitually using; others, such as the operations of dressing and undressing, we regularly use once a day. A cricketer has certain favourite strokes. Even in such matters, however, if we could apply a sort of psychological microscope, I imagine we could discover indefinite sub-conscious modifications which are made in order to suit variations in those stimuli which are only faintly recorded in consciousness and are analysed only in sub-consciousness. Skill, in fact, seems to consist not so much in invariableness of response as in an indefinite possibility of sub-conscious plasticity.

So far I have been attacking the negative position. The positive position must attempt to describe the nature of the general factors which it postulates. It is already recognized that there are innate factors of a general kind in our make-up; hence, it is easier to consider the possibility of general acquired factors by analogy with these innate factors. As I am using the general innate factors only to show what a general acquired factor must be like, it does not matter whether the exact nature of the general innate factors has been as yet diagnosed rightly or not. Dr. Burt interprets *g*, the first of them to be isolated, as the power of focussing the mind on its object in such a way that the intellectual apprehension stands out clear-cut, and the conative aspect of such focussing may be called momentary attention. It involves as its negative aspect a limitation

of the field of apprehension to the one matter in hand. Such a factor has been found by measurements to enter into all activities which can be considered to be matters of mental skill. Originality or the power of recognizing similarities has been put forward as a second general innate factor. Brute memory, though of a lower order, I suppose is another. The degree to which past resolves continue to operate is a fourth. None of these has yet been proved to be trainable ; several are almost certainly not so. But in the case of the first, at least, it is very hard to see how it will not die of desuetude if it is not used, in which case it can be said in a sense to need training.

The chief difference between an innate and an acquired part of our make-up would seem to be that the former are possibilities or capacities, while the latter are tendencies. These tendencies are of course based on innate dispositions, but whereas we often possess two opposed innate dispositions—*i.e.*, dispositions which are likely to lead in opposite directions (*e.g.*, the raw materials of caution and of impetuosity, of egoism and of altruism, of dependence and of independence), we inevitably think of the tendencies as they finally appear in a man's make-up as acquired—*i.e.*, as largely the result of education.

In these days when you recognize that a tendency which in this sense is acquired has come to be operative over so wide a sphere that it can be called general, and when you also want to be rude to it, you call it a "complex." Thus, where it is intended to imply that the positive and negative self-regarding tendencies have come to affect a person's judgment on everything, it is becoming fashionable to speak of an "ego-complex." In psychology I dislike epithets which imply praise or blame. No one would speak of a "logic-complex" or "impartiality-complex" or "truthfulness-complex." On the other hand, the Atomists speak of tendencies such as these as "ideals" ; and they, in turn, would never speak of a "vanity ideal" or "lack of independence ideal." But, psychologically, I imagine they are all the same—a certain innate propensity has repeatedly produced certain feelings in certain types of situation till the actual presence of the emotion is no longer needed to influence action. I have spoken of such tendencies as general, and yet as confined to certain types of situation ; but the inconsistency is superficial, for the type of situation which, say, impartiality can come to operate is any in which partiality would be possible.

The crucial question, therefore, if we assumed innate factors to be untrainable, seems to be this: Which constitute the most important parts of a person's intellectual build (for I take it that the value of "subjects" is not much concerned with moral qualities save so far as these qualities are such as affect intellectual operations), the big general acquired tendencies or the smaller and more specific habits ? To my mind, there is no doubt as to the answer. The latter are more easily acquired in a man's actual occupation ; the former are more easily acquired through educational institutions. The big general tendencies are the basis which form a man's general capacity. Granted that these are good, he can easily acquire the professional tricks.

Examples of these big general tendencies are the habit of making sure that you understand statements, the habit of receiving them critically,

the habit of demanding proof, the habit of attacking a new problem analytically, the habit of suspending judgment till enough evidence is in, impartiality, intellectual truthfulness, etc.

It will readily be admitted that no language will precisely describe such tendencies as they exist in any individual, and that the things described will not be the same in any two individuals. The element of novelty in the new situation will often be too great to allow them to work at their best. A mind, for instance, which has acquired a disposition to suspend judgment till enough evidence is at hand may easily be puzzled when turning from a subject where he well knows the amount of evidence which is needed to one where he has little experience. Yet he will always have the advantage over the narrow specialist that he will be more adaptable. In every branch of life and knowledge new situations arise which call for plasticity, and the former type will be plastic without knowing it.

Finally, it seems to me a mistake to talk of "transfer." The Atomists appear to regard habits as associated with particular kinds of subject-matter. Thus, if a habit formed in connection with the study of motion and equilibrium is exercised in studying the factors involved in the production of commodities, it is said to be "transferred from mechanics to economics." The truer conception is that mental habits are associated with the form and not with the content of thought. What counts is whether the pupil has learned facts, or has followed trains of deductive reasoning, or has worked out such trains for himself, or has formed and verified hypotheses, or has balanced masses of conflicting evidence, or has worked statistics into concomitant tendencies, and so on. When he does the same thing with other subject-matter, there is no essential difference in the process, no need to speak of "transfer."

This does not, however, lead to a conclusion which has sometimes been put forward as the last word on the subject, that it does not matter *what* is taught ; the only thing which counts is *how* it is taught. The important thing to remember in this connection is that different subjects differ immensely in the amount of use which they make of various mental operations, both relatively and actually. In an hour's mathematical lesson and an hour's English lesson hardly any of the mental processes would be the same. And I imagine more thinking usually takes place at the age of "16+" in ten minutes' mathematical work than in an hour's laboratory work.

Two other points require consideration.

The first is that the difference in individual capacity to develop the broad general habits is vastly greater than in capacity to develop narrower habits. Hence it may well be that the training value of subjects is limited to a minority of the population, and to those possibly only on attaining a certain age, though of this I am far more doubtful. We are familiar with "capacity to profit by a secondary education" as a legal phrase ; and this is the sense in which I should interpret it.

The second is the bearing of these arguments on specialization. Capacity for mathematics, or science, or languages, or history, seems to me not wholly dependent on capacity to use certain mental processes which are specifically mathematical or scientific ; indeed, though I would recognize that there are, undoubtedly, specifically mathematical capacities,

I sometimes doubt whether there exist any specifically scientific or historical capacities. By this I mean that there appear to be capacities for dealing with number which could apply to nothing but number; but in the other cases the difference between subjects may be entirely a question of the relative extent to which they use qualities which have a much wider range. The effect of specialization will, therefore, be to produce a development of certain general qualities in which the pupil is strong, while general qualities in which he is weaker are not developed. Conceivably, of course, a pupil may be "incapable of profiting" in some directions, and, if so, we must leave him. But where the superiority in one set of qualities is slight, if our object be to turn out a plastic human being, early specialization involves a great danger, and, at the highest stage, too, really original work in a subject may, perhaps, mean applying to it just those qualities which in the past have not been applied to it.

# The Disciplinary Value of School Subjects.

## II.

By F. A. CAVENAGH.<sup>1</sup>

In a discussion on the disciplinary value of subjects, it would seem right to keep to their disciplinary value. Yet I venture to suggest that far too much emphasis has been laid upon the formal side of studies. Whether "transfer" (in the technical sense) takes place or not remains unsettled ; experiments prove that it does, and that it does not. But what nobody can deny is that the mind is profoundly and permanently affected by the kind of studies that it has pursued : that a man whose studies have been mainly literary is a different man from one whose studies have been mainly scientific. My reason for making such a painfully obvious remark is that I wish to emphasize the effects of the various studies on the side of Content, Interests, and Sentiments. By seeking to establish, or to demolish, the mysterious disciplinary effects we are apt to forget what seems to me far more important—the value for life of different kinds of knowledge both in themselves and in the interests that grow up around them. A general "set" is given to the mind by the subjects which have chiefly occupied it. You may call it a prejudice or a life interest, according to your own sympathies. It has been excellently (if cynically) stated by the Rev. Dr. Folliott in Peacock's "Crochet Castle" : "I hold that there is every variety of natural capacity from the idiot to Newton and Shakespeare ; the mass of mankind, midway between these extremes, being blockheads of different degrees ; education leaving them pretty nearly as it found them, with this single difference, that it gives a fixed direction to their stupidity, a sort of incurable wry neck to the thing they call their understanding. So one nose points always east, and another always west, and each is ready to swear that it points due north." What Peacock had in mind was not any disciplinary effect of studies, but the effect of the knowledge itself, and of the sentiment organized about that knowledge.

Let me quote another passage written about the same time—the much-maligned remarks of Dr. Arnold about physical science (remarks which did not escape the notice of Mr. Lytton Strachey !). Writing to an old pupil in 1836 about the "room for infinite discoveries" in medicine, he continues : "If one might wish for impossibilities, I might then wish that my children might be well versed in physical science, but in due subordination to the fulness and freshness of their knowledge on moral subjects. This, however, I believe cannot be, and physical science, if studied at all, seems too great to be studied *εν παρέργῳ* ; wherefore, rather than have it the principal thing in my son's mind, I would gladly have him think that the sun went round the earth, and that the stars were so many spangles set in the bright blue firmament. Surely the one thing needful for a Christian and an Englishman to study is Christian and moral and political philosophy." Now I need hardly explain that I have not read this amazing passage for its inherent value, but to illustrate my

<sup>1</sup> A paper read at the Meeting of the British Association for the Advancement of Science, Southampton, September, 1925.

contention that what counts is, first, the actual content of the subjects studied ; and, secondly, the sentiments built up around them. To that extent Dr. Arnold was perfectly right. You cannot, he argued, have all knowledge ; therefore, you must choose between different kinds of knowledge those which will be most valuable for your purposes, and which will build up the sentiment of English Christianity. It is plain that Dr. Arnold had no thought of disciplinary value ; and if this letter were all we possessed of his writings, we might argue that his great scholarship had certainly not disciplined his mind.

The view here advocated is, then, that knowledge creates Interests, and these Interests, with their accompanying emotions, are organized into Sentiments—which as we know are among the ruling forces of life. Thus the value of a subject depends not on its value as “mental gymnastic,” but on the kind of permanent interest it will create in any individual ; unless it does create an Interest, knowledge remains dead. Interest and emotion matter far more than knowledge. “Though I have the gift of prophecy, and understand all mysteries, and all knowledge . . . and have not charity, I am nothing.”

This view is akin to at least one theory advanced by the experimentalists. Thorndike’s theory of common factors, though now discredited in many quarters, seems to contain sound sense. But the transfer involved in the common factors need not be always conscious or intellectual : it may work unconsciously and by way of the emotions. The study of language provides a suitable illustration. If a thorough training in the mother-tongue be given, it will create a living interest, a feeling for language, as we say, which can develop into a very strong sentiment. The value of such a sentiment appears not only in the loving care with which one’s own language is used—the feeling, *e.g.*, that has brought into being the Society for Pure English—but also an intolerance for sloppy or inadequate expression. Further, it helps the learning of other languages, not so much because of common elements in the languages as because the sentiment for style overflows into the study of the new language. I have spoken of the sentiment as being formed first around the mother-tongue ; but it may equally well grow up in connection with another. In spite of all the gibes at learning to write English by constructing Latin prose, the fact remains that this has often proved an excellent way, the explanation being that a boy has acquired, through Latin or Greek, a sense of style that has become a passion, a life-long sentiment.

Obviously, everything depends on the way the language is taught—or, shall I say, learnt ? There is no need to expatiate on the evils of bad methods. The only point to notice is that they, too, produce a sentiment, one of contempt or hatred for language, one which extends its range often enough to all intellectual pursuits. Thus I think it far less important to teach English grammar for the sake of the common factors which appear in the grammar of other languages (a view which, by the way, Jespersen has exposed as fallacious) than to make children delight in the study of literature and in the clear and adequate expression of their own thoughts. And I say this, not because grammar cannot produce a sentiment—Browning’s Grammarians had a sentiment stronger than life—but simply because its appeal is limited to far fewer people than are

affected by poetry. As we have to cater for the many, not for the exceptions, who may become grammarians or philologists, we must so present the study of language as to rouse the greatest common measure of enthusiasm. Even from the utilitarian point of view, keenness for language is far more efficacious than knowledge of grammar rules ; and those who have the facility gained by such keenness find its advantages at every turn. To give but one instance, recent criticism of the ordinary written examination shows how some candidates score in every paper that admits of anything approaching the “ essay ” answer, whilst others are correspondingly handicapped. Mere facility, innate gift of the gab, can usually be distinguished by the discriminating examiner ; but a genuine sense of style (whether rightly or not) brings its own reward.

A similar passion for accurate mathematical expression will transfer itself to all the exact sciences, just as the passion for historical accuracy will affect more than the academic study of history. In all these instances we see transfer of common elements ; but such transfer is far greater when it results from a powerful sentiment, because it is brought about not merely by consciously formed habits, but chiefly by the stronger drive of emotion. The common elements, in fact, exist within the sentiment rather than in the so-called “ subjects.”

This process of the extension of sentiments to embrace new branches of study is made easier by the increasingly realized unity of knowledge. Lord Haldane, like his great predecessor who took all knowledge as his province, is fond of speaking of “ knowledge as an entirety ”—and the phrase is a good one to keep in mind. This entirety may be impossible to reach, yet it should be our ideal. Subjects can no longer be studied in isolation. Chemistry requires physics, and physics requires mathematics—and everybody needs psychology. As for educational science, no one can say where it begins or ends. Thus we can easily imagine the sentiment for one kind of knowledge spreading to another, or, indeed, a sentiment for “ knowledge as an entirety ” continually driving on its possessor to further efforts. This, again, is a point that needs no labouring ; but it seems to me much more important than many that have been raised over the problem of formal training.

Two practical corollaries arise from the view I have advocated. They are not startlingly original—which means that they are true. One is that all teaching (or learning) should be done in such a way as to build up favourable sentiments. This, of course, is in line with most modern developments of education, such as individual work, and learning rather than teaching. To alter the much-quoted saying : “ It doesn’t matter what you teach a boy as long as you make him love it.”

Secondly, the artificial barriers between subjects should be demolished as far as possible. Here, again, one is merely repeating current opinion ; but I base this advice on the value of making it easy for a sentiment formed round one subject to transfer its drive to another. At the same time, we shall put first the subjects whose influence will spread most widely—and first of all seek to organize a sentiment for language, at any rate in those who are capable of such a sentiment.

My remarks cannot be better summed up than by the ancient saw *Abeunt studia in mores* : Studies affect character, by moulding sentiments.

# Can Present Scholastic Standards be Maintained ?

An Experimental Enquiry and a Forecast.

By E. J. G. BRADFORD.

COMPLAINT is often made that the schools are not as effective as they used to be. Even if it be admitted that the complaint frequently comes from those who are not well-informed, or not in sympathy with the ideals which actuate the teacher in his relations with his pupils, yet the persistency of these complaints suggests a reply based on a special enquiry. Starch<sup>1</sup> gives some slight evidence relevant to the problem. He claims that in certain schools in American cities the children to-day show no falling off in their ability to master the difficulties of spelling when compared with the scholars of sixty years ago from the same district. In fact, the modern scholar proves to be slightly superior, in spite of the fact that in all probability only selected children attended school in the earlier period.

School conditions have, on the whole, improved during the last sixty years ; teachers are academically better equipped for their work ; methods of instruction have been the subject of much careful thought and experiment ; and school text-books have been considerably improved. The combined influence of these four factors should have led towards a higher standard of scholastic attainment. In all probability children to-day acquire the information which the schools set out to impart with greater ease than of yore, but it is at least doubtful whether or no they acquire this information with any greater degree of thoroughness.

There is, however, one assumption that vitiates both the cogency of the criticism and of the usual defence, namely, the assumption that the innate quality of mind of the child population as a whole remains constant from generation to generation. Is the assumption, that the quality of the human material now passing through the schools is as good as that of sixty years ago, justified in the light of our knowledge of the intelligence of the population at large ? And, more important still, can there be any confidence in the belief that the children who will go to the schools sixty years hence will be the equals in intellect of those who are now the object of the teacher's attention ?

It is not an uncommon experience to meet a head master or head mistress who, on the strength of twenty years' acquaintance of one school, claims that the mental calibre of the present generation of children is markedly inferior to what it used to be. Further, anyone of thirty years

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<sup>1</sup> Starch: *Educational Psychology*, p. 348.

of age is old enough to call to mind instances of districts that have "gone down" socially. A school in such a district almost invariably reflects this decline in the intellectual quality of its pupils. During the same period of time, however, other schools have arisen, schools whose pupils are intellectually of a higher grade. May it not be that the decline of some schools is compensated for by the rise of other schools of better quality, and that the average intelligence of the school population is constant?

It is common knowledge that there is a strong tendency for parents with blue eyes to have children with blue eyes ; for parents with violent tempers to have offspring with violent tempers ; for intelligent parents to have intelligent children ; and, unfortunately, for mentally-defective parents to produce mentally-defective children. Thus, if the offspring of the intelligent parents are more numerous per family than those of less intelligent parents, then the average of the whole population will be gradually raised, or if the reverse conditions obtain, then the average will be steadily lowered. The second possibility would result in a lowering of attainable scholastic standards, unless the improvements in teaching methods and organization were so great as to mask temporarily the depreciation in the quality of the human material dealt with. The evidence collected together in the sequel suggests that this is what may actually be happening at the present time.

The problem cannot be attacked as directly as the ideal of scientific precision would prescribe. It is more than unlikely that a "fair sample" of the adult population would submit to a test of intelligence, so that a comparison could be made with the results of a similar test of the intelligence applied to their offspring. It is possible, however, to measure the intelligence of samples of the school population and study these results in relation to the size of family from which the children come. Unfortunately, the cases of those adults who have no offspring to send to school are lost, and the number of such is by no means inconsiderable.

This method was applied to sample schools drawn from a city whose population is, roughly, half a million in number. The schools were distributed geographically as follows : One was in the centre of the town, the other three were situated radially two miles from the centre, one in the south, one in the north-east, one in the north-west. For the purposes of local administration the schools are classified, according to the results expected of them, into five grades, Grade I being the highest. The sample schools were representative of Grades I, II, III, and V. In each school all the boys and girls over ten years and under eleven years of age were given a modified form of the Otis Intelligence Test in two halves, at an interval of one week. The experiment was conducted in March, 1925 ; thus the children tested were, practically speaking, a pre-war sample. This particular age was taken as being the maximum age group that had not been effectively skimmed by selection for secondary schools. The disadvantage of taking such a low age limit is that as there may be more than ten years difference between the oldest and the youngest members of a family, uncompleted families are represented in the sample of the school population tested.

TABLE I.

*Children classified according to intelligence and size of family.*

NUMBER OF CHILDREN WITH GIVEN INTELLIGENCE SCORE.

Nº. of brothers and sisters.	0—9	10—19	20—29	30—39	40—49	Total.	Mean.
0 and 1 ..	13	25	34	29	10	114	24.1
2 and 3 ..	27	39	29	22	7	124	20.5
4 and 5 ..	23	29	25	14	2	93	18.1
6 and 7 ..	14	16	9	2	0	41	14.5
8 or more ..	6	9	5	1	0	21	13.9

(Correlation between intelligence and size of family =  $-.25 \pm .03$ .)

In spite of the fact that the above results present a blurred picture of the relationship, because some of the children come from the older end of uncompleted families, yet a striking decrease in average intelligence goes along with the increase in the number of siblings. The figures suggest that the duller intellects are increasing much more rapidly than the brighter intellects. If the above sample be accepted as reliable, then teachers must expect the scholastic standards to fall. The task of the teacher three generations hence will hardly be an enviable one if he or she is expected to maintain the scholastic standards of to-day. It may, however, be questioned whether the sample of children taken fairly reflects the tendency in the population at large?

The census return for 1921, recently published under the title of "Dependency, Orphanhood, and Fertility," contains tables giving the numbers of children of parents according to the occupation of the father. Also, within the last eighteen months, the results of two investigations have been published, one in England<sup>1</sup> and one in the United States,<sup>2</sup> results which go to show that there are measurable differences in average intelligence between the children of parents following different occupations. The results of these two investigations agree very closely. According to both, the average intelligence of the children of parents engaged in agriculture is lower than that of those engaged in engineering, and that, in turn, is lower than the average of those engaged in commerce. A comparison of the census returns with the intelligence of the occupational groups shows that an increase of the mean intelligence of the children from group to group corresponds with a decrease in the average number of children per family among those groups. Evidence collected on a large scale is to this extent in harmony with that obtained from the selected schools.

In Table II averages are tabulated as if they referred to identical classes. Actually it was found impossible to equate the classes except as

<sup>1</sup> Duff and Thomson: *British Journal of Psychology*. Vol. XIV, p. 192.

<sup>2</sup> Haggerty and Nash: *Journal of Educational Psychology*. Vol. XV, p. 559.

rough approximations. Thus Duff and Thomson's class of "clerks, secretaries, and draughtsmen," is made to correspond with the census class of "clerks, draughtsmen and typists." The age group, 40-44 years, is chosen, firstly, because the majority of the families do not increase to any great extent after the parent has passed that age; less than one per cent. of new families start after that age. Secondly, because very few of the men in this age group have children of sixteen years of age, children who would not be included in the census table referred to. Thirdly, because the mortality increases rapidly after this age, with the result that a number of the families would appear among the widows' families if a higher age group were selected, and these are not classified in occupational groups.

TABLE II.

Occupation.	No. of fathers, age 40-44, in thousands.	Average No. in family.	D.T.	Average I.Q.	H.N.	Relative Death Rate.
Professional .. ..	27	1.50	112	116		1.0
Clerical .. ..	37	1.47	110			1.1
Commercial .. ..	108	1.72	108	107		1.1
Public Service .. ..	32	1.73	106	—		—
Personal Service .. ..	33	1.67	103	—		1.9
Paper and Print .. ..	15	1.78	105			1.1
Engineers .. ..	17	2.42	104			1.0
Textile Manufacturers .. ..	27	1.61	—			1.1
Textile Goods .. ..	25	2.03	103			1.1
Woodwork .. ..	45	1.99	103	102		1.0
Paint and Decorate .. ..	21	2.13	103			1.1
Metal Work .. ..	122	2.13	101			1.2
Warehouse and Store .. ..	19	1.82	102			—
Building .. ..	55	2.28	102			1.1
Transport .. ..	121	2.13	101	95		1.1
Mining .. ..	83	2.74	98			1.1
Agriculture .. ..	77	2.22	98	91		0.7
Labourers (undefined) .. ..	62	2.36	96	89		2.5

D.T.—Duff and Thomson. *Brit. Journ. Psych.* Vol. XIV, p. 193.

H.N.—Haggerty and Nash. *Journ. Educ. Psych.* Vol. XV, p. 559.

Death Rate.—"Public Health and Social Condition." Local Government Board. (H.M. Stationery Office. 1908. P. 29.)

A selective death rate will compensate in part for the influence of the differential birth rate—e.g., the labourer's larger family is associated with a high adult death rate. Yet the incidence of the death rate has a very much smaller compensating effect than might at first sight be thought. This is because the families of those fathers who do not reach the age of 40 are not included in the 40-44 age group. A point worthy of attention in connection with the differential death rate data given in Table II is that the classes for which relative death rates are given include grades of occupation with varying death rates covering a wide range. Thus, under commerce are included grocers with a relative death rate of .8, and general dealers with a rate of 1.8. Under transport come railway guards and porters with a relative rate of .9, and dockers with a rate of

1.7. The adult death-rate is highest in those grades the children of which have, on the whole, the lowest intelligence quotients. But this last sentence may not apply to the professional classes, in which the death rates for the clergy and doctors are .6 and 1.2 respectively, though even in this case the results of Duff and Thomson's investigation suggest that the generalization may be true. Thus the relative rates of increase deduced from the classification according to intelligence will need to be more heavily compensated by relative death rates than the rates of increase deduced from the occupational classification.

If the classes in Table II be divided into three main groups—the first four classes containing roughly two hundred thousand families, the next eight classes containing three hundred thousand families, and the last six classes containing four hundred thousand families—the approximate mean gross rates of increase are  $-18\%$ ,  $+1\%$  and  $+15\%$ , assuming that groups with average families of less than two are dying out. If this relative rate of increase were continued for three generations the numbers of descendants of these three groups would be not in the ratio of two, three and four, but approximately of one, three and six. The descendants of the most intelligent group would dwindle from one-fifth to one-tenth of the population. The same line of argument applied to the data obtained from the schools points even more definitely in the same direction.

TABLE IIIa.

	INTELLIGENCE SCORE.				
	40—49	30—39	20—29	10—19	0—9
Number of Children ..	19	68	102	118	83
Number per cent. ..	5	17	26	30	21
Mean No. of Siblings ..	1.6	2.2	2.9	3.7	3.4

If the average size of family from which the highest grade of intelligence is drawn is 2.6 children, and the average size of family from which the lowest grade of intelligence is drawn is 4.4 children, then *assuming that the same ratio of increase applies for three generations, the dullards, who now outnumber the brightest intellects by four to one, will, in the meantime, have produced descendants sufficient to outnumber the descendants of the most intelligent classes to the extent of about two hundred to one.*

The importance of the problem warrants a further questioning of the validity of the data presented; first, as to the fairness of the sample drawn from the schools, and, secondly, as to the applicability of relative occupational death rates for adults to the mortality of the children of parents following those occupations.

The relative proportions of the various grades of intelligence of the school children are almost identical with those obtained by Duff and Thomson. To that extent at least the sample is reliable.

TABLE IIIb.

Northumberland, <sup>1</sup> I.Q.	Percentage of children.	Intelligence <sup>2</sup> score.	Percentage of children.
Over 120 .. ..	6	40—49	5
110—119 .. ..	17	30—39	17
100—109 .. ..	26	20—29	26
90—99 .. ..	26	10—19	30
Below 90 .. ..	24	0—9	21

Cox<sup>3</sup> quotes from the data presented to the First National Birth Rate Commission to show that the death rate of children under one year varies with the social class of the parent. Among the upper and middle classes it is 76 per thousand born ; among the skilled workers, 113 ; and among the unskilled, 153 (year 1911). Great as this difference appears, since the total number of deaths of children of all classes falls very rapidly after the first year, these different rates only apply to one-tenth of the births.

The death rate<sup>4</sup> per thousand living children under one year is 118 ; of children one to two years, 34 ; of those from two to three years, 14 ; of those from three to four years, 8 ; and of those from four to five years, 6. Thus, even assuming the differential death rate to apply in unaltered proportions, for the first five years, only one-fifth of the child population is affected, the remaining four-fifths reaching school age.

The effect of the differential child death rate would be inappreciable on the relative rates of increase deduced from the school children tested, because it would have spent its force before the children arrive at school age. The effect of the differential adult death rate would be to reduce the size of the families of the lower grades of parents because of the earlier death of the father. This would tend to obscure the relationship observed between the size of family and the intellectual grade of the sample child. Further consideration, therefore, suggests that the arguments based on the differential birth rate do not need any serious modification in virtue of the existence of a differential death rate.

#### A FORECAST.

Before embarking on an argument which is of the nature of a prophecy, it will be well to discriminate between relevant facts and assumptions. Among the facts are (1) that smaller families are found among non-manual workers ; (2) that higher I.Q.'s are found among the children of non-manual workers ; (3) that adult death rates vary among the occupational groups ; (4) that differential death rates exist among the children of the various occupational groups ; (5) that the physical relationship between parent and offspring can be expressed as a .5 correlation ; (6) that children from smaller families have generally

<sup>1</sup> Duff and Thomson's investigation.

<sup>2</sup> Present investigation.

<sup>3</sup> H. Cox : "The Problem of Population," p. 99.

<sup>4</sup> Eighteenth Annual Report of the Registrar-General of Births, Deaths, and Marriages. Page 46.

a higher I.Q.; (7) that the physical relationship between siblings can also be expressed by a .5 correlation. Among the assumptions are (1) that the distribution of intelligence among the children of an average family approximates to a normal distribution about the parental mean; (2) that the relative effective fertility of the various groups composing the total population is not a chance phenomenon but symptomatic of a continuing trend.

In the light of the above facts and assumptions, what inferences can be drawn from the data embodied in Table III, relative to the permanence or otherwise of the standard of intelligence of the school population from generation to generation? Consider, first, the 26 per cent. of children of the mean grade of intelligence. When they reach adult years their children may be expected to be of varying intelligence and distributed approximately as follows:—Very Dull, 5 per cent.; Dull, 25 per cent.; Mean, 40 per cent.; Bright, 25 per cent.; Very Bright, 5 per cent. The offspring of the 17 per cent. Bright grade may be expected to show a larger proportion of Bright grade and a smaller proportion of Dull grade, the distribution would be approximately as follows:—Very Dull, 0 per cent.; Dull, 5 per cent.; Mean, 25 per cent.; Bright, 40 per cent.; Very Bright, 30 per cent. However, owing to the difference in the effective fertility rates, a larger proportion of children of each succeeding generation are produced from the duller fraction of the population. Hence the distribution of the numbers of off-spring in the various intelligence grades must be weighted accordingly when calculating the probable distribution of the filial generation.

Put in other words, the problem to be solved is:—*From a given distribution of intelligence among parents, and a given relationship of parent to offspring of the order of X per cent. correlation, to deduce the distribution of their offspring among the same grades of intelligence.* Obviously, there are a number of distributions which would give X per cent. correlation, but one which is obtained by assuming a tendency to an approximately normal distribution within each grade is the more probable, such as the hypothetical distribution which follows.

TABLE IVA.

Parents.	PERCENTAGE OF CHILDREN IN EACH GRADE OF INTELLIGENCE				
	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Very Bright .. ..	—	—	5	25	70
Bright .. ..	—	5	25	40	30
Average .. ..	5	25	40	25	5
Dull .. ..	30	40	25	5	—
Very Dull .. ..	70	25	5	—	—

Let us endeavour to read Table III in the light of a parental-filial relationship as is pictured in Table IVA. The 5 per cent. Very Bright children differentiated by the tests (Table III) were probably drawn from families the parents of which were in three different intellectual grades. The highest grade of parents were small in number, but about

70 per cent. of their children are of the same grade. The second grade of parents are more numerous, but the proportion of their children who are included in the top grade is smaller—about 30 per cent. ; while 5 per cent. of the children of the much larger class of parents of average intelligence are found in the highest grade. *Each new generation of the highest grade of intelligence will, on this assumption, be drawn predominantly from parents of lower grade*, because the previous generation of highest grade have fewer children per family than do the parents of lower grade.

The census statistics agree closely with the *relative* size of families sampled in the schools. Table II shows that the average family of the two occupational grades with the most intelligent children is only 1.5 children, whereas the average family of the three lowest occupational grades—mining, agriculture, and labouring—is 2.5 children per family. The relative rates of increase are in the proportion of three to five. Table III shows that the average number of children in the families containing children of the highest grade is 2.6 children, while children of the lowest grade come from families whose average size is 4.4 children. Again, the relative rates of increase are in the proportion of three to five.

In order to estimate the distribution of children in a succeeding generation according to the parental intelligence grades, let us start with the distribution discovered by testing, then weight these numbers according to the relative rates of increase, and distribute the resulting generation among the grades of intelligence according to the scheme suggested in Table IVA.

TABLE IVB.

Intelligence Grade of Parent.	No. of Parents, per cent.	Relative rate of Increase <sup>1</sup>	Probable number of Children	Distribution of children in grades of intelligence.				
				Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Very Bright.	5	.75	3.75	—	—	.2	.9	2.6
Bright ..	17	.90	15.3	—	.7	3.8	6.1	4.6
Mean ..	26	1.135	29.25	1.5	7.3	11.7	7.3	1.5
Dull ..	30	1.35	40.5	12.2	16.2	10.0	2.0	—
Very Dull ..	21	1.275	26.78	18.7	6.7	1.3	—	—
Total ..	—	—	115.6	32.4	30.9	27.0	16.3	8.7
Percentage ..	—	—	—	28.00	26.6	23.4	14.5	7.5

By repeating this process several times it is possible to arrive at the probable distribution of intelligence in succeeding generations, and thereby get a hint of the direction and extent of the general tendency. The correlations between these hypothetical distributions of parents and children works out to about .72 in each case—*i.e.*, it is slightly higher than the maximum inheritance influence.<sup>2</sup>

<sup>1</sup> .75 is the actual rate discovered for the professional class (see Table II). The other rates are in the proportions obtained from the children tested (see Table III).

<sup>2</sup> Cf. K. Pearson, "The Relative Strength of Nurture and Nature," p. 50.

TABLE Va.

	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Present generation	21	30	26	17	5
1st filial generation ..	28	26½	23½	14½	7½
2nd „ „ ..	32	26	21	13	8
3rd „ „ ..	34½	26	20	11½	7½
4th „ „ ..	36	26½	19½	11	7

Perhaps the most striking feature of the above table is that *the class of Very Dull children is likely to increase by 50 per cent. within two generations*, that is, from 21 to 32 per cent. of the total population. At the same time the proportion in the top two classes remains practically steady, though a marked decrease in the proportion seems likely to set in after that period. In so far as this is an accurate forecast, it is obvious that the accommodation required in secondary schools will remain constant for some years to come, but that special provision will need to be made for backward pupils. The apparent increase in the number of pupils in the Very Bright class would probably not affect the elementary schools, because a number of them would go to private schools, since parents of the highest grade would rise to the professional or higher commercial class, and their children would not be sent to public elementary schools.

An interesting question is prompted by the above distributions. When did the distribution of population approximate closely to the normal curve? It has been suggested that a normal curve depends on the choice of suitable units of measurement, but obviously if the relative rates of increase of the different classes are maintained, in order to obtain a normal curve, different units of measurement will have to be employed for each generation. It may be justifiable to bend our ascertained distributions into the form of a normal curve for the purposes of mathematical manipulation, but for comparative purposes such a procedure is hardly advisable, as standardized units of measurement are imperative.

For example, let it be postulated that sixty years ago the distribution of population according to intelligence was normal, and that the present relative rates of increase have been operative since that time. It should then be possible to deduce by calculation a probable distribution of intelligence among the population and compare it with the actual distribution obtained by testing.

TABLE Vb.

	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Sixty years ago (assumed) ..	7	24	38	24	7
Thirty years ago (calculated) ..	16	24½	28	20	12½
Present day (calculated) ..	23	24	24	16	12
Duff and Thomson sample ..	24	26	26	17	6
Present sample .. ..	21	30	26	17	5

It may be no more than a coincidence that the calculated distributions approximate so closely to that found by Duff and Thomson in actual testing. The discrepancy in the numbers in the Very Bright class may be due to several causes. First, it has been assumed that the number of years between generations is the same for all classes, whereas it is certainly greater among the upper classes in the social scale. Secondly, it has been assumed that the continued skimming of a particular class leaves that class unaffected in its potentiality for throwing up abnormally intelligent or abnormally dull specimens. It is highly probable that this continued selection tends to reduce the variability and to fix the type. The slower rate of reproduction, in time, and the impoverishment of the strains may be advanced as an explanation of the apparent discrepancy, though the fact that the children of the professional classes go mostly to the private preparatory schools would be sufficient to account for the dearth of highest grade intellects in the public elementary schools, and thus explain the discrepancy noted above.

If the supposition of a maximum total parental-filial relationship of .7 be considered too high, it would be well to consider the other extreme possibility, namely, that of a total parental-filial relationship of .5—*i.e.*, the intensity of resemblance between the children and a single parent. A table showing a hypothetical distribution of parental and filial intelligence with approximately this degree of relationship follows.

TABLE VI.

PARENTS.	PERCENTAGE OF CHILDREN IN EACH GRADE OF INTELLIGENCE.				
	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Very Bright .. ..	—	5	25	40	30
Bright .. ..	2½	15	32½	32½	17½
Mean .. ..	5	25	40	25	5
Dull .. ..	17½	32½	32½	15	2½
Very Dull .. ..	30	40	25	5	—

When the intelligence of the off-spring is as varied as this table suggests, and when the same differential rates of increase are applied as in Table IVB, then the correlation between parents and offspring in each generation works out to about .47. Starting from the experimentally ascertained distribution and calculating on the basis of the above hypothetical relationship, and of the differential rates of increase discovered, the following changes from generation may be expected.

TABLE VIIa.

	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Present generation .. ..	21	30	26	17	5
1st filial generation .. ..	15	29	32	18	5½
2nd .. ..	13	28	33½	20	6
3rd .. ..	12	27	33½	20½	6½

If the relationship between parent and offspring is only about .47, then we may expect a rapid improvement in the intelligence of the lowest third of the population in the near future. But we can only accept this result if it can be shown that the same influences would have produced the present distribution from a normal distribution in two generations. For it is highly probable that the differential increase has only been fully operative within the last sixty years.

TABLE VIIb.

	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Sixty years ago (assumed) ..	7	24	38	24	7
Thirty years ago (calculated) ..	9	25 $\frac{1}{2}$	34 $\frac{1}{2}$	22 $\frac{1}{2}$	7 $\frac{1}{2}$
Present day (calculated) ..	11	26	34	22	7 $\frac{1}{4}$
Duff and Thomson sample ..	24	26	26	17	6
Present sample .. ..	21	30	26	17	5

The skewness developed by two generations of differential increase is comparatively small compared with the skewness actually found. Also the continued influence of this differential increase (Table VII) will so reduce the skewness existing at present as to practically halve the percentage of individuals in the lowest class. This is at variance with the fact that the feeble-minded and mentally-deficient tend to be on the increase among the population.

Even the most bigoted partisan will hardly maintain that intelligence tests measure pure native wit and nothing else. It is admitted on all sides that home influence will have some effect on the intelligence score of the child. Also it will readily be admitted that the character of the home influence depends largely on the intelligence and occupation of the father. Hence the carry-over from generation to generation will necessarily include both physical inheritance and traditional inheritance absorbed in the home atmosphere. Physical inheritance alone will account for a correlation of .5 between parent and child, hence the combined carry-over would be expressed by a higher figure. Is there any evidence to suggest that the total carry-over is equivalent to .7, our first supposition? There certainly is some evidence, though it is somewhat scanty. This evidence is given below.

(1) Professor Karl Pearson has shown that in certain physical characters there is a likeness between husband and wife. Surely it would not be extravagant to assume that the correlation between husband and wife in regard to intelligence was higher than the .2 discovered for physical characters, as mating tends to take place within the social grade. Professional men marry into the families of other professional men, and for geographical reasons, miners' sons have married miners' daughters. Hence, the grade of intelligence inherited from both parents will tend to be the same. This will tend to reduce the regression, and increase the correlation above the minimum of .5.

(2) In support of the contention that the home tradition must be considered, we have a measure of its influence in the choice of occupation

made by children. The coefficient of contingency between the occupation of father and son in the higher grades of the professional class has been shown by Dr. Heron to be as much as .75.

(3) From Dr. Gordon's data, a coefficient of .59 is obtained between the I.Q.'s of the elder and younger siblings. This Miss Elderton<sup>1</sup> tries to whittle down to the .5 level.

(4) Recent work<sup>2</sup> carried out among children of the highest intelligence grades shows that the likeness between siblings is as much as two-thirds. It is unlikely that the likeness between parent and child would be less. A few of the parents of these children were tested, and the results were such as to suggest that the relation between the parent and offspring was of the same order as that between siblings.

(5) In the table of hypothetical distributions which produce a correlation of approximately .5, the highest grade of parents are assumed to have offspring distributed among the grades as follows:—

Parents.	Very Dull.	Dull.	Mean.	Bright.	Very Bright.
Highest Grade (assumed) ..	0	5	25	40	30
Professional Class, H. and N. ..	5½	11	19	21	43
“ “ D. and T. ..	7	7	25	31	30

When it is pointed out that the professional class of parents are by no means all of the highest grade of intelligence, it will be realized that the hypothetical distribution of children of the highest grade parents errs on the side of pessimism. We should expect to have more children in the highest grade. The difference between the results of Haggerty and Nash on the one hand, and those of Duff and Thomson on the other, may be due to the fact that the primary schools are more commonly used by the professional classes in America than they are in England. Both distributions are affected by the fact that all the children of the professional classes do not attend the primary schools.

It is probable that the increase in facilities for secondary and higher education will strengthen the tendency to assortive mating. It will tend to bring intellects of similar grades together and so intensify the segregation of intelligence already resulting from mating within the social class. All influences which tend to increase the resemblance between one generation and the next will increase the rapidity of decline resulting from the differential rates of increase. The phenomenon would be much more serious if the total population were really made up of a mixture of "pure lines," after the manner of Johannsen's beans. According to this supposition, Very Bright children of Bright parents would have children of their own who were predominantly of the Bright grade. There would be no permanent recruiting of the higher grades from lower grades. Thus the higher grades would die off more rapidly. "Galton's 'Law of Regression,' namely, that minus parents give minus offspring and plus

<sup>1</sup> E. M. Elderton: *Biometrika*. Vol. XIV, p. 393.

<sup>2</sup> M. V. Cobb and L. S. Hollingworth: *Journ. Educ. Psych.* Vol. XVI, p. 1 ff.

parents plus offspring, with a tendency to reversion from generation to generation, depends simply upon a partial but not complete isolation of pure lines out of a population.<sup>1</sup>"

On the whole, the above argument errs on the side of optimism, for the relative rates of increase which have been applied to weight the numbers in each succeeding generation are in proportion to the size of family from which the tested children were drawn. Owing to the tendency for each generation to struggle to maintain or improve upon the standard of life of their parents, the average size of family from which the children come is sure to be greater than the size of family which they produce. In the past this tendency has been more marked among the more intelligent classes, so that rates of increase used in the calculations do not differ sufficiently. It is largely owing to this tendency of the duller progeny to maintain the standard of life of the more intelligent parent that, although the duller individuals are increasing rapidly, yet the average size of families is not on the increase. This tendency may in time affect the lowest grades, though the possibility seems doubtful at present.

It is clear that a large number of influences have to be considered in attempting to forecast the type of raw material with which the schools will be dealing in the future, but until it is possible to estimate the relative strength of these influences, the teachers will be at the mercy of the croakers on the one hand and ultra-emotional idealists on the other. The above rough estimate of the influence of one marked social tendency may help to clear the ground by introducing the concept of quantity into the discussion. However open the main argument may be to the charge of pure speculation, yet there is a very considerable amount of circumstantial evidence in favour of the contention that *the present scholastic standards cannot be maintained indefinitely in face of present social tendencies.*

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<sup>1</sup> H. E. Walter: *Genetics*, page 117.

## Some Sex Differences in the Appreciation of English Literature.

BY MARY E. MATTHEWS.

WITH the possible exception of the superiority of boys to girls in mathematics, no question of the mental differences between the sexes gains more unanimity of opinion than that of the superiority of the girl in English. From the publication of the class-lists of the first Cambridge Local Examination, for which she was allowed to sit some sixty years ago, down to those of the most recent School Certificate Examination, the girl has shown herself capable of more than holding her own. Her superiority over the boy seems to be due partly to greater native ability, partly to greater interest, and partly to tradition.

The accompanying diagram shows the scatter of marks achieved in the English examinations of 1923 and 1924 by the boys and girls of a co-educational grammar school, the number of cases considered being 212 boys and 187 girls. Sixty per cent. of the girls achieved the median of the boys. The girls show no greater tendency to cluster round the median, nor to genius, nor to deficiency than do the boys ; but a comparatively larger group of boys between 20 and 30 (fair) is compensated by a comparatively larger group of girls between 60 and 70 (good).

In addition to this difference of performance, there is also a considerable difference between the standpoint of girl and boy with regard to literature, as was shown by the following experiment and enquiry which were made to test differences in appreciation of poetry.

### I.

The subjects of this experiment were the children in the three third forms of the school formerly mentioned and numbered 37 boys and 34 girls. The boys varied in age from 10 years 4 months to 13 years 2 months, their average being 11 years 8 months ; the girls from 10 years to 13 years 5 months, their average being 11 years 6 months.

Five poems were chosen to cover the types usually presented to children at this stage of development. All of them were new to the children except the last, which was known to one boy. The selection comprised "Crécy," a poem of action, dealing with bravery in battle ; "Sherwood," a poem of nature and romance ; "The Spell," a fairy poem ; "Semmerwater," a ballad ; "Kingfisher," a subjective nature poem, and "England," from "Richard II," an expression of the feeling of patriotism in blank verse. In order that no poem should make a stronger impression by being read first or last, they were read in a different order each time, and as there were six poems read twice each to each of three classes, each poem was first once and last once.

After the reading, the poems were listed by each child in order of preference. The papers were then marked, six marks being awarded to the poem placed first, five to that placed second, four to that placed third,

and so on. The marks for each poem were totalled, and the poems arranged in two orders of preference, one for the girls and one for the boys. The results were as follows:—

Order of preference of the Boys.

“Crécy.”  
“Sherwood.”  
“England.”  
“Ballad of Semmerwater.”  
“The Spell.”  
“Kingfisher.”

Order of preference of the GIRLS.

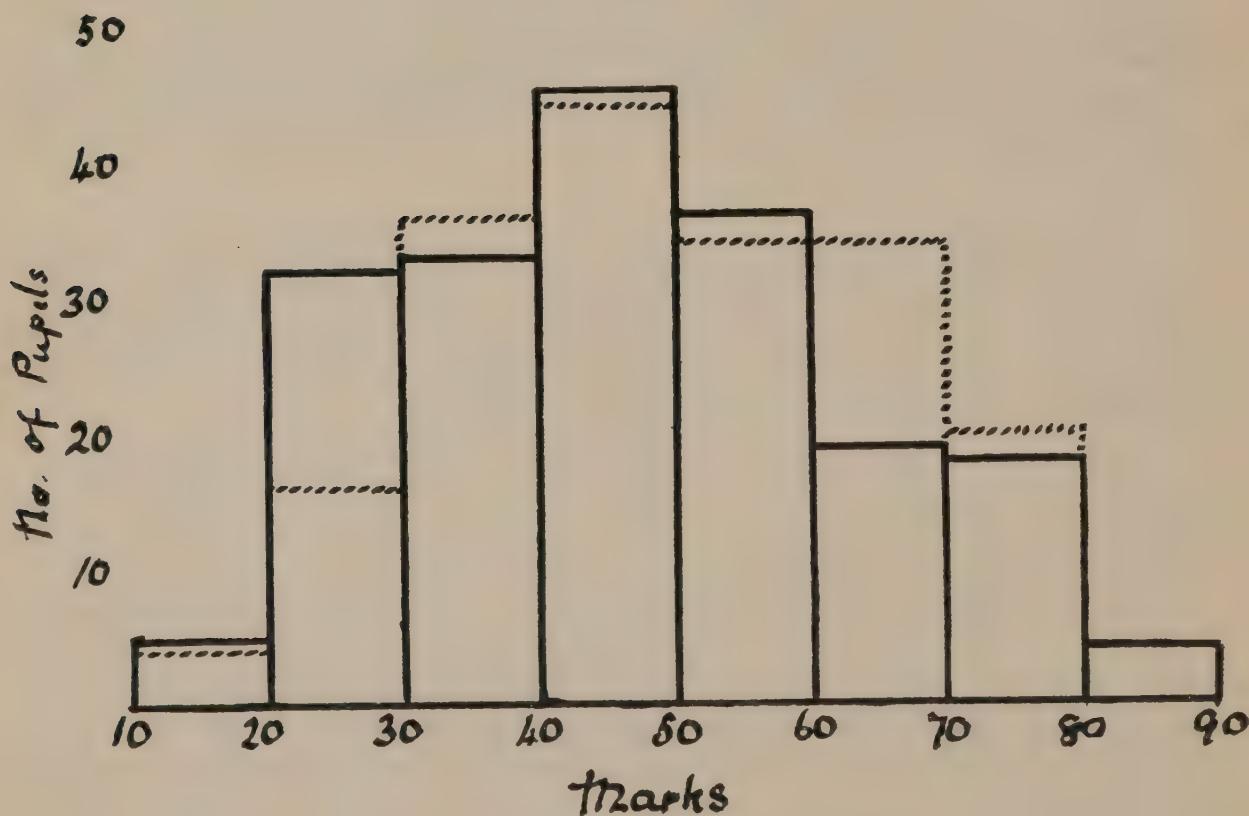
“Sherwood.”  
“The Spell.”  
“Kingfisher.”  
“Ballad of Semmerwater.”  
“Crécy.”  
“England.”

Thus the girls show a decided preference for nature, fairy lore and romance, and are relatively less aroused by expression of patriotism and description of battle, while the partiality of the boys is the reverse of this. “Sherwood,” with its haunting melody and romantic associations, makes an almost equal appeal to each, though the relatively greater appreciation by the girls of its natural descriptions may account for its taking one place higher in their list. There seems to be little difference between boys and girls in preference for the ballad.

DIAGRAM TO SHOW COMPARATIVE ACHIEVEMENT OF BOYS AND GIRLS IN ENGLISH EXAMINATION.

(Constructed from the examination results of a Co-educational Grammar School, 1923—1924.)

Refs.—Boys, Plain Lines; Girls, Dotted Lines.



60% of the girls achieve the median of the boys.

The fact that the results of this experiment are strikingly borne out by the following enquiry, points, also, to the reliability of the latter.

## II.

## ENQUIRY AS TO TYPES OF POEMS PREFERRED.

The three classes of children described above were warned at the beginning of the term that some time later they would be asked to write down what poems they liked best, and to say, if possible, why they liked them. They thus received plenty of warning, so that when the test was given they would not be tempted to put down the first poem that came into their minds as their favourite, through an inability to recall anything else. During the interval which elapsed between the warning and the experiment (seven weeks) no aesthetic appreciation lessons were given lest there should prove to be an undue bias as the result of the most recent work. When the experiment was actually made, one out of the three forms was told that any poems which were not liked could also be mentioned. The above method was devised to ensure, as far as possible, complete sincerity on the part of the examinees.

As a result most of the papers rang very true, only one or two cases arising where the honesty of the reasons given seemed questionable, and these were taken for what they were worth. For example, one boy writes: "I like poetry of action in ancient days because it in various ways instructs me. For instance, in 'Horatius,' the names of persons engaged in doing particular things are given . . . which instructs me in history and certainly improves it. Also, the places mentioned make an improvement in my geography. . . . The metre is also interesting to notice and the way in which the poem is punctuated. This gives me an idea in making poetry up myself." In justice to this utilitarian youth, it may be said that he had recently heard the poem "Horatius" read in connection with a lesson in Roman history, in the course of which a map had been used, and he was, perhaps, priding himself on his insight into the teacher's method. Moreover, it is conceivable that a boy with such an outlook would not be a lover of poetry for its own sake, and that even this is not an example of real dishonesty.

Throughout there is a very marked difference between the favourite poems of boys and girls (though the anthologies used in school were, of course, the same for both, viz., "Golden Numbers," "A First Book of Modern Poetry," and "Poems of Action"), and the reasons given for preference are equally divergent.

*Poems Preferred by the Boys.*

## A.—Poems which tell a story.

(1) Historical poems relating chiefly to battle:—

- “ Horatius ” (mentioned 15 times).
- “ The Charge of the Light Brigade ” (mentioned four times).
- “ Chevy Chase ” (mentioned twice).
- “ Fall of d'Assas ” (mentioned twice).
- “ Pipes at Lucknow ” (mentioned twice).
- “ How they brought the Good News from Ghent.”
- “ Battle of Lake Regillus.”
- “ Ballad of Brave Lord Willoughby.”
- “ The One and the Fifty-three.”
- “ Battle of Waterloo.”
- “ Morte d'Arthur.”
- “ Perkin Warbeck.”

## (2) Poems of action relating to the sea :

- “ Battle of Trafalgar ” (mentioned six times).
- “ Wreck of the Birkenhead ” (mentioned four times).
- “ Casabianca ” (mentioned three times).
- “ The Revenge ” (mentioned twice).
- “ Drake’s Drum.”
- “ Armada.”
- “ Sir Humphrey Gilbert.”
- “ Battle of the Nile.”
- “ Inchcape Rock.”

## (3) Stories with a Supernatural Element :

- “ Jackdaw of Rheims ” (mentioned three times).
- “ The Pied Piper of Hamelin.”
- “ The Fakenham Ghost.”

## (4) Stories of Animals :

- “ On a Favourite Cat Drowned in a Tub of Goldfishes.”

## (5) Unclassified stories :

- “ High Tide off the Coast of Lincolnshire.”
- “ Ballad of East and West.”
- “ John Gilpin.”
- “ Lochinvar.”
- “ The Glove and the Lion.”
- “ The Blind Boy.”

*B.—Poems which arouse a feeling of Patriotism :*

- “ Mariners of England ” (mentioned three times).
- “ Home Thoughts from Abroad.”
- “ England ” from “ Richard II.”

*C.—Descriptive Lyrics :*

- “ In Search of a Hare.”
- “ The Brook.”
- “ The Scarecrow.”
- “ The Fairies.”
- “ The Song of the Sou’ Wester.”
- “ The Wind in a Frolic.”

Thus with the boys, poems of action easily take first place. Over and over again they demand thrills, daring adventure, valour. While some lay emphasis on the story, one requiring that it shall be true, many that it shall be historical, one avowing that “ The Charge of the Light Brigade ” tells of that valiant charge caused by the giving of wrong orders, much better than any history book under the sun ; some lay emphasis on the moral, declaring a preference for a poem which teaches a good lesson. The favourite virtues are heroism in battle and patriotism, though one boy prefers a poem which teaches “ unquestioning obedience,” and another, extolling “ The Wreck of the Birkenhead,” writes : “ Why I like this poetry is because it shows the politeness man must give to women and children, and it tells us that man must suffer a great deal for them.”

Poems describing naval battles are general favourites with the boys, though not more than half a dozen state specifically that a poem is preferred because it deals with the sea.

*Reasons for Preferences of Boys.*

Although the boys appear considerably less subjective than the girls, a few make interesting introspective remarks. One or two like poems which make them feel excited ; one declares that while he is reading of valiant deeds it makes him feel courageous, and another likes to imagine himself the hero. One, who quotes "The Blind Boy," says he likes it because it makes him feel as the blind boy did, and it makes him happy to read that one so unfortunate could yet know contentment. Another likes adventurous poems when he feels sad ; they cheer him up and make him feel lively. An adventurous poem is enjoyed because it keeps the reader in suspense as to what will happen next. A. P., who is rather extravagantly enthusiastic over "Horatius," writes : "When that great warrior rushes at *Horatius*, one is eager to know whether he gets killed or not." He continues : "When the Tuscan army is advancing to Rome, the poet explains it so perfectly that one can imagine the scene. One can imagine himself *Horatius*, *Lartius* or *Herminius*, because they are described so well, and when they are fighting one can almost imagine himself a Roman or a Tuscan soldier. While I was reading the poem I could hear and see nothing but the book . . . for there was not a word in it that was dry, and when I had once read it I remembered all the most interesting parts. The verses are very easy to learn, for four verses can be learnt in about half an hour"—a great recommendation, undoubtedly !

Only two boys show any disapproval of these war-like poems, one writing simply that although he admires "Horatius," he does not like too much bloodshed ; the other, though he quotes no examples, likes the "calm and peace of Shelley," and does not like fighting.

Far behind the poems of heroic action come those which are amusing and "raise a laugh." "'The Jackdaw of Rheims' cheers you up when you are sad at times.' " "John Gilpin" and Gray's "Ode to a Favourite Cat" are quoted for the same reason.

To the boy, it is the substance of the poem which recommends itself ; a number would undoubtedly prefer the story—unless the metre is very simple—in plain prose. Of the few who express an opinion about the metre, most prefer a good swinging measure. Browning's description of "The Ride from Ghent to Aix" makes H.M. feel as though he is moving, and he can hear the horses' hoofs and feel when the horse falls. Another boy likes "The Fairies" because it has a good swing ; and another, "The Song of the Sou'wester" for the same reason. One or two appreciate onomatopæia, "The Jackdaw of Rheims," "The Brook," and "How They Brought the Good News from Ghent to Aix," being quoted in this connection. One prefers ballad metre and short verses to any other ; one or two like a poem because it "rhymes nicely." R. H. writes of "The Song of the Sou'wester" : "It rhymed itself without your trying to make it, and it is nice to say." ("Rhyme," as used here, evidently means "rhythm.")

Only two boys make a direct reference to the enjoyment of visual imagery, B. A. writing : "In short, the kind of poetry I really enjoy is

that which banishes all other thoughts, and causes all attention to be devoted to it ; which holds a tight grip upon the reader so that pictures are imagined of the story." S. P. D. quotes a stanza from " The Charge of the Light Brigade." Then writes : " When reading this the reader can almost see the men charging." A. P., already quoted, has a less direct reference to the same thing.

Several writers refer to the ease with which a poem can be learned as a recommendation, one adding further : " I also liked ' In Search of a Hare ' when I had learnt it."

Boys, equally with girls, demand that they shall be able to understand a poem. My own experience has been that children enjoy a poem for its musical qualities only when these have been brought home to them by very careful training. Many undoubtedly look upon the verse as a kind of impediment. One boy writes : " This poem is very interesting and can be understood as well as if it were a story." This attitude of looking upon poetry as a somewhat awkward substitute for prose is not uncommon, and the fact that the simplest versification is most popular, suggests that where the teacher is attempting to gain the children's appreciation of a more difficult poem, a background lesson, not merely such as Hayward describes, to acquaint the children with the full meaning of the phraseology and to create an atmosphere, but also to familiarize them with the versification, ensuring this by getting them to make a preliminary attempt at composition in the same metre, is advisable.

### *The Preferences of the Girls.*

The girls, who, on the whole, are more introspective than the boys, also require that a poem should not be too long. Lyrics are preferred by most, and an older girl, writing in another connection, says : " I do not like to read long poems by myself, for about halfway through I seem to lose interest and the story becomes blurred and indistinct—because I cannot understand the meaning, I suppose. So I would rather read shorter poems, and I am especially interested in those which deal with nature or the feelings of the poet himself. Simple poetry with a good rhythm and metre is sure to please, for I become so interested that, unconsciously, I beat time with my hands or foot, as a lover of music does when an orchestra is playing. I also like blank verse, but I always find that short lines which rhyme seem to stick after once reading them."

On the whole, I find that the girl, for absolute appreciation, must surrender her whole self to the poem to a greater extent than the boy, who can enjoy poetry with more detachment. (Perhaps this is why the girl is less critical than the boy.) Many of the girls prefer to read aloud themselves, even if their rendering is bad, but I have never noticed this tendency among the boys. The following quotation from a girl's paper is illustrative : " I can never enjoy poetry if I read it quietly when someone else is in the room. . . . I must have a room to myself where I can read the poetry aloud. I forget where I am, and soon find myself drifting among the clouds. The book slips from my hand, and I can see the poet writing his poems and can understand his feelings."

Several of the elder girls also require to be in the right mood for a poem. E. H. writes : " I think that it is the mood that we are in which

chooses for us the poetry which is to give us pleasure," and J. B. : " Poetry, I think, is a thing which is spoiled by being read in school, because poetry is one of the few things that you want to be in the mood for or you cannot see the beauty of it."

The list of favourite poems quoted by the girls differs substantially from that of the boys. There is more variety, indicating that girls read more poetry out of school than do the boys, and although many of the favourite poems are those which tell a story, there is nearly always an indication of enjoyment of the poetry as such. There is greater subjectiveness in the reasons which the girls give for their enjoyment, showing more of a tendency to introspection. While, with the boys, it is the exception to find reference to mood, with the girls it is the rule.

### *Poems Preferred by the Girls.*

#### *A.—Poems which tell a Story.*

- (1) Historical poems dealing chiefly with warfare :
  - " Horatius" (mentioned nine times).
  - " Chevy Chase" (mentioned three times).
  - " How they brought the Good News from Ghent" (mentioned twice).
  - " The Guide's Signal."
  - " The Charge of the Light Brigade."
- (2) Poems relating to the Sea :
  - " Loss of the Royal George" (mentioned twice).
  - " The Battle of Trafalgar."
  - " Sir Patrick Spens."
  - " The Revenge."
  - " Ballad of the Fleet."
  - " Admirals All."
  - " Wreck of the Hesperus."
  - " Loss of the Birkenhead."
- (3) Stories with a Supernatural Element :
  - " Jackdaw of Rheims" (mentioned five times).
  - " Alice Brand" (mentioned twice).
  - " Pied Piper of Hamelin" (mentioned twice).
  - " Crab Apple."
  - " St. Lawrence and the Gnomes."
  - " Goblin Market."
  - " God's Judgment on a Wicked Bishop."
  - " Fakenham Ghost."
  - " Lady of Shalott."
  - " Robin Goodfellow."
- (4) Unclassified stories :
  - " Lucy Gray" (mentioned six times).
  - " The Highwayman" (mentioned three times).
  - " Lord Ullin's Daughter."
  - " The Collier's Dying Child."
  - " The Norman Baron."
  - " The Ballad of John Nicholson."

## B.—Poems relating to Animals :

- “ Bedd Gelert ” (mentioned twice).
- “ To a Field Mouse.”
- “ The Arab to his Steed.”
- “ The Fawn.”
- “ To a Favourite Cat Drowned in a Tub of Goldfishes.”

## C.—Descriptive Lyrics (chiefly of Nature) :

- “ Song of the Sou’ Wester ” (mentioned four times).
- “ Daffodils ” (mentioned twice).
- “ Spring ” (mentioned twice).
- “ The Windmill ” (mentioned twice).
- “ Days Too Short ” (mentioned twice).
- “ The Scarecrow ” (mentioned twice).
- “ Elegy Written in a Country Churchyard.”
- “ The Brook.”
- “ Winter Rain.”
- “ The Old Arm Chair.”
- “ The Sea.”
- “ The Uphill Road.”
- “ Nod.”
- “ The Fountain.”
- “ Apple Cottage.”
- “ In Search of a Hare.”
- “ The Wind in a Frolic.”

*Reasons for Preferences of Girls.*

A superficial glance at the list will show that there are fewer war poems, while the number of lyrics quoted is much greater. There seems to be less partiality for historical poems. A. G. writes : “ The only kind of poetry which I do *not* like is historical. I don’t think these are interesting ; they always seem to be very long and they have not got much rhythm in them.” On the other hand, many girls prefer supernatural legends, which are very rarely mentioned by the boys.

It is interesting to notice that the girls often chose a poem in which a woman is the principal character. Next to “ Horatius,” which probably gains undue notice owing to the fact that it was being studied in class at the time of the experiment, the favourite poem is “ Lucy Gray,” which is mentioned six times ; “ Alice Brand ” is twice quoted ; “ The Highwayman ” three times ; “ The Lady of Shalott ” and “ Lord Ullin’s Daughter ” once each, none of which poems are mentioned by the boys. No boy mentions a poem showing love of animals (Gray’s “ Ode to the Favourite Cat ” was preferred for its humour), while five are mentioned by girls. One girl likes “ Apple Cottage,” because it is about children, and another “ Crab Apple ” because it is about fairies.

Bravery, patriotism, sacrifice, faithfulness and obedience are qualities admired by the girls, though, on the whole, such abstractions are not referred to nearly so often by girls as boys. One or two girls avow a dislike for warlike poetry. I. P., for example, writes : “ The poems of battle and strife are not my favourites, though they are sometimes learnt or read because it is necessary for school matters ” (*sic*).

The reason, "because it is sad," for liking a poem is given strikingly often. "The Collier's Dying Child," "Lucy Gray," and "The Old Arm Chair," are quoted in this connection. The difference between the boy, who likes "The Loss of the Birkenhead," because of the moral it points, and the girl who likes it because it is "so pathetic," is characteristic. On the other hand, girls sometimes like a lively poem to cheer them up. L. W. writes: "Humorous poems tell of amusing incidents which drive away dull care from our minds. It is like receiving medicine when one is sick to read a humorous poem when one is melancholy. We are loth to read it at first, as we are loth to take medicine, but when the deed is done, it does us good, and we feel very glad that we did read it."

Only one boy shows a preference for nature-poetry as such, and he likes "The Scarecrow" because it is about "wheat and the fields and the farmer," while the majority of girls, at least, include nature-poetry among their preferences. A single girl writes: "I do not like poems about nature which are dry and contain no story"; but the tone of the papers, as a whole, is very different from this. For example, "Poems of nature are the most wonderful of all poems, and nothing will make me change my opinion on this subject"; and "The reason for my liking this type of poetry is because it shows us how nature can inspire the whole world."

### *Visual Imagery.*

Girls seem to have stronger visual imagery of nature scenes than boys have. E. P., who likes nature poetry best, writes: "Although, perhaps, it is a rainy day when we are reading a poem about nature, our minds carry us to some peaceful countryside. We can imagine the beautiful sun shining on the trees and the birds warbling a joyous melody. . . . Perhaps we imagine ourselves on a hillside looking down on a lake. In the distance, through the trees, a gleam of gold shines. A second look and we see it is a group of daffodils. Such a lot there are that the light almost dazzles our eyes." And thus K. C.: "At my age I like poems which form a picture in my mind, as poems of nature and sea ballads. . . . Gray's 'Elegy' is sad but beautiful. . . . As I read this poem I can almost hear the curfew ringing, and a picture comes to my mind of a churchyard where the ploughman is." And again, I. P.: "There are different kinds of poems even about nature, and I prefer those which describe nature when she is asleep, while the moon shines down with a silvery, weird gaze." D. H. quotes three poems, in each of which the vividness of the visual imagery is striking. "The kind of poetry I like best is that which describes natural scenery; you can almost imagine yourself in the country; the poem seems to bring it like a picture in front of you. . . . 'The Loss of the Birkenhead' is very interesting, and puts before your mind a ship in danger, gradually sinking, and the women and children very much afraid when they can see themselves going to a watery grave. . . . 'The Jackdaw of Rheims' sets in your mind a mental picture of the jackdaw with mischievous, laughing eyes, and then the angry Cardinal, wondering where his ring has gone to, the friars kneeling about and looking under carpets and in every unearthly place and listening to the Cardinal curse all the while."

The versification is referred to on nearly every paper, most girls liking the poem to "go with a swing." Short verses are preferred to long ; in one instance, "The Pied Piper," which is liked for its story, is criticized on account of its long stanzas. Ballad metre is favoured. Several people do not like blank verse ; one writes apologetically that Shakespeare's poetry is difficult to understand, and that she does not like it until she has found out the meaning. Onomatopœia is appreciated, and many examples are given of lines whose music echoes the sense.

From the differences brought out by this investigation, it is clear that it is not always possible to please equally in the poetry lesson the girls and the boys in a mixed class, for out of 91 poems mentioned altogether, only 14 occur in both boys' and girls' lists. Yet, although, for one cause or another, the taste of boys and girls may be divergent, no poetry need be presented in school which is absolutely distasteful to either. It would surely be undesirable never to present a class of boys with a nature poem because it does not eagerly thirst for them, and in a mixed class it is not unlikely that the enthusiasm of the girls may spread sympathetically to the boys, and *vice versa* with poems of a different type. Also, taste will become very much truer where it is criticized and has to be defended.

### III.

#### SEX DIFFERENCE SHOWN IN METHOD OF STUDYING A SECTION OF PROSE BY SIXTH FORM STUDENTS HAVING SHARED THE SAME TRAINING THROUGHOUT THE SCHOOL.

The pupils were required to read a certain section of Burke's "Reflections on the French Revolution" and to prepare questions on difficult points for discussion at the next meeting. The exercise was not set for the purpose of psychological experiment, but the results showed such a striking difference in method that they seemed worthy of record.

The boys' questions are given below, verbatim.

(1) Discuss the preponderating legal element in the States General of 1789.

(2) Consider how far Burke is just in thinking property requires a fuller representation than ability.

(3) Was Burke right in calling the French Revolutionists "bold and faithless men"?

(4) Was Louis a mild and lawful monarch, and did his hand hold out "grace, favour and immunities"?

(5) Is Burke right in saying that the horrors of the French Revolution need never have occurred?

(6) Were there "no men of practical experience" in the Tiers Etat?

(7) Was the Tiers Etat composed mostly of obscure men?

(8) Were the clergy as Burke paints them?

(9) What was the real constitution of the French National Assembly at this time?

(10) Was the Tiers Etat really as bad as Burke paints it?

(11) What were the differences between the House of Commons and the Tiers Etat?

(12) What is the meaning of the phrase "France has bought poverty by crime"?

The highly critical tone of these questions, and the anxiety to catch Burke out on some political or legal point is, I think, striking. There is only one question (No. 12) on the detailed meaning of a particular passage, and that demands an explanation of a political rather than a verbal obscurity.

The following are the girls' questions.

(1) Explain "Has utterly disgraced the tone of lenient counsel in the cabinets of princes, and disarmed it of one of its most potent topics."

(2) Discuss "The characteristic essence of property, formed out of its acquisition and conservation, is to be unequal."

(3) Explain "And to crown all . . . subverted."

(4) Who was the Earl of Holland?

(5) What was "the third of the legislature"?

(6) What does Burke mean by "the last stake reserved for the ultimate ransom of the State"?

(7) Explain the paragraph, "The association of tailors and carpenters . . . you attempt to force them."

(8) Explain paragraph 2 on page 41.

(9) What are "the two great recognized species"?

(10) What is the meaning of the Latin quotations on pages 49 and 52, and where does Burke find them?

(11) What is a "litigious constitution"?

(12) What is the meaning of "chicane"?

With the exception of Question 2, there is evidence of no desire to criticize Burke's facts or arguments, but of a careful study of the text with a scrupulous anxiety about verbal detail. The boys do not ignore the textual difficulties because they have a better understanding of them, but because they concentrate upon the far more essential argument. The girls, on the other hand, implicitly accept the statements of an author until criticism is brought to bear by the teacher or some other, when this is often accepted with the same credulity.

Thus each of the experiments shows sex difference in attitude to literature, but no need for differentiation of method seems to be indicated. Indeed, when class-teaching is necessary, the broader outlook, gained by the greater appreciation of the girl, coupled with the higher critical ability of the boy, will be an advantage to both.

# The Progress of Research in Education.<sup>1</sup>

## I.

IN the summer of 1922 the Council of the British Psychological Society set up a Committee for Research in Education, composed in part of psychologists and in part of teachers and others in touch with schools and training colleges and with administrative bodies. The Committee has made it part of its duties to arrive at an estimate of the actual progress of educational research in the British Isles; this estimate, together with a consideration of the conditions of further progress, forms the subject of the present statement.

As might be expected, the inquiries of the Committee have shown that the amount of research being done is small, and is being carried out mainly in the Education and the Psychology Departments of Universities. Much attention is being given to the problem of mental tests, with special reference to the standardization of group and individual tests of general intelligence, to the use of tests for special abilities such as mathematical, musical, scientific and practical, and to vocational tests for the various occupations. Among other problems being investigated are those of suggestibility in children, the measurement of temperament and character, special studies of difficult and of super-normal children, the mental images of school children, literary appreciation, the effect of games on school work, children's vocabularies, and group tests of geographical knowledge and other scholastic attainments. To these may be added certain researches in modern language teaching, being undertaken by a Joint Sub-Committee nominated by the Committee for Research in Education and the Modern Language Association. This Joint Sub-Committee supersedes a research committee set up by the Modern Language Association in 1920, and is of interest because it provides the first example of the linking, for purposes of research, of a great special subject association of teachers and professors with a central research committee.

Though the amount of research being done is small, the stimulating fact remains that, given the necessary encouragement, it could at any time be very appreciably increased. This fact revealed itself unexpectedly to the Committee as a result of the publication by it of a classified list of "problems in need of investigation." The appearance of the list in *THE FORUM* and other educational journals brought the Committee a large number of letters from teachers and students in all parts of the country expressing their readiness to undertake research and asking for guidance. Some of the applicants were qualified to undertake such work without guidance, but were not able to do so owing to the lack of grants or posts definitely allocated to research. In answer to their letters the Committee could do little more than give advice and encouragement.

It is interesting to compare the halting progress of educational research in this country with that in the United States. According to an article which appeared in the *American Journal of Educational Research*,

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<sup>1</sup> Communication from The British Psychological Society Committee for Research in Education. The Hon. Secretary, Mrs. Susan Isaacs, M.A., will be glad to receive correspondence on the matter at 47, Hills Road, Cambridge.

there are already in the States about forty educational research departments connected either with Universities, training colleges, or State and City educational systems. Detroit, a town not much larger than Leeds, had, at the time of the issue of the article (1922), five officers, each with a separate staff, engaged in different branches of research in education. There is an association of educational researchers strong enough to maintain a monthly organ of its own, the one above mentioned. That this association looks forward to a considerable expansion of research activities is evident from the following statement by one of its prominent members :—“In a fully-developed school system, educational research would be carried on by some fourteen departments, each with a responsible head, and each with research and clerical assistants.” The ambitious nature of this ideal can only be fully appreciated when it is realized that there are in the States forty-eight State school systems and several City systems. In addition to the local research institutions, there is the National Bureau of Education, at Washington, which does, but on a larger scale, the kind of investigation our Special Inquiries Department was created to do. Not long ago a legislative measure was brought forward to enlarge still further the scope of the bureau’s operations. In this measure an instructive item was the proposed creation of Educational Attachés to American Embassies, their duty being to watch educational developments in foreign countries.

From this it is evident the Americans believe that educational research, like industrial research, should be encouraged ; and so much so that they run some risk of advancing too quickly. They appear in danger of finding the supply of efficiently-trained research ability unequal to the demand ; hence the possibility of disappointing results and of a temporary set-back. With us it is different ; our supply of trained research ability is small, but small though it is, it goes, for the most part, begging.

It would not be correct to assume that the relatively slow progress of research in this country is due to any hostility on the part either of the schools or the administrative bodies. It is due, rather, to an insufficient appreciation of its value. To demonstrate its value satisfactorily is, however, only possible when educational research can point to a larger body of assured results than at present. That results have been produced is undeniable, but they are more or less unfinished and tentative, owing chiefly to the difficulties of the technique of research. This technique is in process of development ; upon it, rather than upon results, attention has rightly to be concentrated. But, failing a completely satisfactory demonstration, it is still possible to offer one that may be found reasonably convincing.

## II.

In attempting this let us consider apart those subjects for research that lie outside and those that lie inside the scope of the daily professional experience of the teacher and administrator. To take, first, those that lie outside. Among the most important are some which are purely psychological. Such are the nature of mental imagery and imageless thought, the existence of general ability as distinct from specific abilities, the significance of dreams and fantasies in childhood and adolescence, and the nature of instinct and intelligence. Another group is provided by

infantile experience. What we know of this we owe less to direct observation than to the empirical treatment of after-effects, which has disclosed the possibility that happenings in the early years of childhood have an importance in the life of the adolescent and adult not hitherto appreciated. There are, again, the set of problems peculiar to home life as distinct from school life, among which may be noted those concerned with the influence of home conditions on school work, with home discipline, with the treatment of phobias of the young such as the familiar fear of the dark. Connected with the preceding are the long-period comparative studies, on definite lines, of individual children, or types of children. Finally, there is a large group of educational problems bearing on the post-scholastic or adult period; such are the comparative value of the various forms, new and old, of re-education or re-formation of character, and the relation of success or failure in life to success or failure in school or University.

Granted the importance of these matters, the fact which concerns us is that not only do they fall outside the scope of the ordinary professional activities of the educator but that it is no part of anyone's professional business to investigate them, if we except a few psychologists who, *qua* psychologists, are interested, however, only in a part of the field. To ensure progress in the whole field there is no other means than specific educational research.

When we turn to the subjects for investigation that lie, not without, but within the scope of the teacher's ordinary professional experience, the utility of research is not so immediately evident. We have to face the fact that educational practitioners do in the course of their daily work both observe and experiment to a greater or less extent, and that the results achieved may be said to make for progress. What has to be proved is that progress would be quicker and more certain if professional experience were supplemented by systematic research.

The most obvious way of doing this is to take a successful classroom experiment and show how, in the absence of research, its influence upon progress is inevitably restricted. The experiment selected is a well-known one in the teachings of Latin made in the ordinary course of instruction by Dr. Rouse and his colleagues at the Perse School, Cambridge. An account of it in its earlier stages will be found in Pamphlet No. 20 of the Board of Education.<sup>1</sup> It has since been repeated several times at the Perse with increasingly satisfactory results. Into the details of the experiment it is not necessary to enter. The general conclusion formulated by Dr. Rouse suffices:—

“There is no outside test which we can apply to this work except the open scholarships; but as we find that boys compete for these under no disadvantage, although they have spent *one-third* the time on classics which their competitors have spent, we are satisfied they lose nothing, whilst they gain in knowledge of other subjects usually neglected, and most of all in their attitude to their work.”

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<sup>1</sup> Since the present statement was written Dr. Rouse and Mr. Appleton have published a book on the “Direct Method of Teaching Latin,” through the London University Press.

Here we have a statement which implies that the usual methods of teaching Latin result in a loss of time that is both considerable and avoidable. The statement is backed by a weight of skilled experience that it would be unwise to ignore. It leaves no doubt as to the desirability of making a systematic attempt to find out to what extent the saving of time made at the Perse could be effected in other schools. So far no such systematic attempts have been made. What has happened in the case of the Perse experiment is what normally happens in the case of all new ventures in teaching made in the classroom ; it has been repeated with varying success in a certain number of schools ; of the results of these trials we have no available account ; in the great majority of schools the older methods continue in honour, regardless of the apparently serious waste of time their use involves. What we ought to know and do not know is how far the comparative success or failure of the Perse method in the schools in which it was tried is to be ascribed to some factor in the method itself, or to the operation of other factors—e.g., the capacity of the teacher ; his bias ; the capacity of the class, its habitual attitude to work, its size, its previous preparation in Latin ; to misunderstandings or deliberate modifications of the Perse method. Now the reason we remain in ignorance of these essential particulars is that it has been nobody's business to obtain them. Here it is that research comes in to round off the work of the teacher. Had it been the duty of a qualified researcher to report on the trials made in the various schools, and not only to do this, but also himself to conduct or control experiments made under carefully prescribed conditions, either identical with or different from those at the Perse, and had this process of verification been carried to the point where it was possible to state that, given such conditions such results were predictable, what is still matter of opinion would have been converted into matter of fact. An assured step forward would have been made. As things are, in the absence of a recognized standard of judgment, the conflict of opinion continues and progress is inevitably retarded.

The experiment at the Perse School involves a question of the value of rival methods of instruction. Let us now take an example of the way in which systematic research would actually operate with regard to such a question. The example is provided by an experiment in the teaching of subtraction made by Mr. W. H. Winch, and described by him in the *Journal of Experimental Pedagogy* (June—Dec., 1920) under the title of "Equal Additions versus Decomposition in the Teaching of Subtraction." It was followed by a similar experiment testing two current methods of learning English verse. (*Brit. Journal Psychology*, July, 1924). The procedure could be, in fact, applied to almost any two rival methods.

In the case of subtraction, two experiments were made, each in a different school ; in the first with Standards V and VI, totalling 38 girls, aged, on the average, about 12 ; in the second, with Standards II and III, totalling 46 girls, aged, on the average,  $8\frac{1}{2}$ . The older classes, those in the first school, were accustomed to the decomposition method ; the younger classes were more familiar with the method of equal additions. A detailed account of the experiments is not here possible or necessary. What concerns us is the research procedure. Its aim was so to arrange

the conditions that the result reached could be exclusively assigned to one or other of the rival methods. To do this it was essential to remove all possibility of the result being affected by irrelevant factors such as the superior capacity of one or other of the teachers or of the classes. Both of these factors were ruled out by a well-known device which Mr. Winch was the first to employ. Each class taking part was divided by means of preliminary tests in subtraction into two equal groups of approximately equal ability pupil for pupil. One half of each class was given a fixed number of lessons by the decomposition method, the other half of the same class being given an equal number of lessons of equal length by the method of equal additions. Finally, tests were given. The results of these tests could clearly not be ascribed to difference in the capacity of the classes, for it was throughout by approximately equally capable halves that the rival methods were learnt. This would have been the same, however great the number of classes taking part. Nor, again, could the result be ascribed to differences in the factor of the teacher's capacity, in so far as this factor operated at all, for each pair of opposed groups were halves of the same class and had to do, therefore, with the same teacher.

The device of "two equal, parallel and highly correlated groups" does not exhaust the precautions that had to be taken, but it suffices to illustrate their nature. In both schools the results favoured the method of equal additions. The conclusions were similar to those obtained by Dr. P. B. Ballard by a somewhat different method. If repetitions of the experiment under similar and different conditions continue to give a like result, there will, obviously, be no room left for further conflict of opinion ; we shall have in its place verified facts.

The object of Mr. Winch's experiments was to test rival methods in actual use in the schools. But it is important to note that research into matters within the scope of professional experience is by no means limited to methods in use nor does it proceed only by way of experiment.

The following is an example of a piece of scientific observation which differs only from the more usual form of scientific observation in that it involves the use of an instrument of precision. It is taken from a book on the "Handwriting Movement," written by an American investigator, Mr. F. N. Freeman, and published by the Chicago University Press. The question that Mr. Freeman and his colleagues set out to answer was a very practical one about which there is conflict of professional opinion. How may handwriting best be taught ? Two courses for investigation were open ; to compare either the best current methods of teaching handwriting or the best methods of writing. The former was rejected because the best teaching method may still be an inferior method—that is, it may be relatively, but still far from absolutely, the best. It remained, then, to compare methods of writing, and it was assumed that the method of the best writers was the one which the pupil should be instructed to imitate, the best writers being those who wrote with the maximum legibility and speed. The investigation was limited to a study of the movements of the hand, wrist, arm and pen in writing, those of the best writers being compared with those of the indifferent and the worst. The subjects were 323 children and 15 adults, some of the latter being recognized experts.

To get an exact record of the handwriting movement, Mr. Freeman made use of the motion-picture camera. Each subject wrote comfortably at his desk, the camera being overhead. The ribbon of films obtained recorded a series of separate fractions of each movement of the hand; any one or more of these fractions of movements could be projected on to the screen and held there stationary for observation as long as required, or the ribbon could be run through the lantern at any speed, either faster or slower than in nature. Exact observation was thereby rendered possible. Marked characteristic differences were found between the good and bad writers, differences that proved constant on verification; also slighter differences between the good writers ascribed to structural variations, whether in the fore-limb itself or in the nervous system. Hence, be it noted, the necessity of allowing, in instruction, for differences in the hand-writing of individuals, subject, always, to certain uniformities, such as the sliding of the hand on the third and little finger, the nearly perpendicular position of the forearm to the line of writing, the light grasp of the pen, and the placing of the forefinger lower down on the penholder than the thumb.

The foregoing examples must here suffice to illustrate the utility of research in respect of matters that lie within the scope of daily professional experience. They show that such research may either complete a process begun in the schools (e.g., Mr. Winch's experiment), a process that otherwise remains incomplete (e.g., Perse experiment), or that it may proceed independently (e.g., Mr. Freeman's observations). In either case, research results in definite advances provided that it can be carried to its logical conclusion is a statement that is verifiable, and, therefore, indisputable. To what extent such a conclusion can be reached by educational research, experience alone can show. What we have tried to make clear is that it may be reached by research where it cannot be reached by the ordinary process of professional experience. Within the bounds of the latter verification is, it is true, possible up to a certain point. A teacher is, clearly, in a position to affirm, on the ground of repeated experiments, that under the given conditions of his school certain results are predictable from the use of his methods. But he is not, *qua* teacher, in a position either to predict with certainty what results would be brought about by the use of his method under different conditions in another school by another teacher, or to deny that in his own school another method than his might give still better results. This is so because it is not practicable for a teacher, *qua* teacher, nor is it part of his function, to conduct or follow up the process of verification outside the limits of his personal teaching. Beyond these limits, therefore, the validity of his results, however sound they may be, rests matter of opinion.

We arrive at the following conclusion: If we wish the process of substituting verifiable statement for conflicting opinions to be carried beyond a number of independent starting points, each located in a teacher or in a group of teachers, if the process is to ascend to logical completion, or anywhere near to it, then it is manifest that we shall have to rely upon specific educational investigation. Thus, whether as here, its subject matter lie inside the scope of professional experience, or whether, as previously noted, it lie outside, research presents itself as indispensable

if the rate of progress in educational efficiency is to be accelerated. In many cases such research may, it is true, do no more than confirm intelligent opinion, but this confirmation has value, for it dismisses any excuse for accepting the inefficiency that not infrequently results from the operation of opinion that is unintelligent.

### III.

A wider appreciation of the value of educational research, though the first condition of sound progress, cannot of itself give us research in effective action. For this something further is necessary, namely endowment ; and the more so because investigations of the kind under consideration are not marketable commodities. With the question of the amount and conditions of endowment, initial or subsequent, the present statement is not concerned. But it is important to note that already large sums of public money are spent yearly upon industrial and medical research. The principle of public endowment of research has, therefore, received official support. As educational research is likely for some time to prove very much less costly than the two above forms of research, the difficulties in the way of endowment are not insuperable.

An important question remains. What is implied by research in effective action ? In other words, what are the essential conditions of progress on sound lines ?

The first of these emerges from what precedes ; it is the creation of a body of qualified researchers, preferably with some teaching experience, able to give their whole time to conducting investigations of their own, and to aiding or superintending the investigations of others. The creation of such a body is essential partly for a reason already made clear, namely, that without it a large number of important problems of teaching and of school administration, both without and within the scope of daily professional experience, must continue to be neglected ; and partly because the educational practitioner, *qua* practitioner, cannot be expected to take over the task of researcher, *qua* researcher, in addition to his own duties. Nor, apart from the question of time, would it be easy for him to do so, having regard to the recognized fact that between the methods of teaching or of administration on the one hand, and the methods of research on the other, there is all the difference that divides separate professions. This fact does not exclude the practitioner from the work of research ; much of it is dependent on his co-operation, but it makes it necessary that in all cases where he does not happen to combine in his person the trained abilities of educator and researcher, his investigations should be under expert guidance. Failure to realize this vitiated much of the research work done in the past.

The second condition is co-operation between researcher and practitioner, not only as already indicated in the actual work of investigation, but in central direction. Complete and close co-operation is desirable for more than one reason ; the chief being that it removes the educational practitioner from the position of an outside and possibly, at times, unsympathetic critic, and makes him equally responsible with the researcher for ensuring the success of a novel and difficult venture in which his interest is vital. Co-operation will, moreover, serve to impress, on the

one hand, upon the researcher that his work must produce results that are usable ; and, on the other hand, upon the practitioner that there is also value in investigations of which the immediate utility is by no means apparent.

The third condition is effective co-operation (already existent in some Universities), both in training researchers and in the actual conduct of research, between the Education and the Psychology Departments of Universities. Their work is complementary, and failure to recognize the fact can only result in unnecessary expense and duplication of effort.

The fourth condition is the institution of some means of making the results achieved by research, whether in this or other countries, readily accessible to all concerned. Unless this is done, research will, obviously, not achieve its purpose, which is to increase the efficiency of educational practice.

So far, in no country have all these conditions been fulfilled. It is not unreasonable to suggest that that country which takes the lead, which organizes carefully, step by step, with due foresight, the systematic study of how to get the best results in education with the minimum expenditure of time, energy and material, will also be first to profit by the far-reaching effects of increased efficiency in its schools.

## The Age Allowance of Marks in Secondary School Admission Examinations.

By A. JAMES.

ALTHOUGH it is generally agreed that the most suitable age for transfer to the secondary school is 11+, many authorities, to obviate cases of hardship that may arise through illness, or for other reasons, allow candidates of 12+ also to take the usual entrance examination. In these cases the proper adjustment of marks due to difference in age becomes a matter of considerable importance.

A usual—and convenient—allowance is an addition of 1 per cent. per month for each month under 12 of the actual marks obtained by the candidate and a deduction of 1 per cent. per month for each month over 12, but this is by no means a universal rule, considerably less being given in some cases, whilst in others the allowance is made on the actual marks obtainable—*i.e.*, the younger children receive a sort of bonus independent of their actual performance in the test.

It has so happened that at my own school—as at many others—the number of candidates who have qualified for admission during the last few years has been very considerably in excess of the number of vacancies. Many candidates, therefore, not merely failures, have taken the examination in successive years, and I have compared the marks gained by these candidates at their second attempt with those gained at the first.

The examinations of 1921 and 1922 were especially suitable for this purpose. The papers (arithmetic, English and a general paper containing questions in history, geography, and every-day science) were set in each year by the same examining body, the maximum marks assigned to each paper were the same, and the scripts were corrected in almost every case by the same members of the school staff. In 1922, 40 candidates sat for the examination who had also sat in 1921; of these, five were under ten and three were over 12 at the date of the first examination. Excluding these as being outside the usual range, there remained 32 candidates. In 1921 their total marks were 6,369, and in 1922 8,758; an increase of 2,399, or about 38 per cent. The individual increases, as might have been expected, varied considerably, but the median was approximately the same as the arithmetic mean. There was, however, in 1922, a general increase on the part of *all* candidates of about 14 per cent., due, probably, in part, to a somewhat better entry in this year, and certainly in part to a somewhat easier arithmetic problem paper. Deducting all this general increase, however, 24 per cent. is still left as the average figure due to improved attainments during the year.

I have made similar calculations for 1920 and 1921. There were 34 candidates who took the examination in both these years. Twelve of these have been omitted as outside the usual age limits. The average increase in marks of the remaining 22 calculated as in the preceding paragraph was 26 per cent.

Owing to the difficulty of making any reliable allowance for the changed conditions of the 1923 examination, no comparison of the 1922 and 1923 results was possible.

The examination of 1924 was in every respect similar to that of 1923, but I have only the names of seven boys who took both examinations. Their average increase was 30 per cent.

These results, which only refer to one school, and one examination (though a typical one), cannot be regarded as conclusive, but they indicate that the age allowance made in these examinations is usually inadequate, and they suggest that an allowance of 2 per cent. per month would be more correct. It is not without significance that in some of the standardized group intelligence tests there is, what is, in effect, an age allowance of about this figure.

Thus in the Simplex tests (which are specially designed to select children capable of being highly educated) an I.Q. of 120 at age 11 requires 69 marks, at age 12, 87 marks; an increase of 26 per cent. for the year. Similarly in the Northumberland tests for an I.Q. of 120 the marks are respectively 38 and 49 at ages 11 and 12, an increase of 27 per cent. In both tests the percentage increase is somewhat higher for lower I.Q.'s.

## Freedom in Education.

By H. M. Mackenzie. (Hodder and Stoughton. Pp. xii+182. 5s.)

MRS. MACKENZIE'S new book on "Freedom in Education" is included in Hodder and Stoughton's "Library of Philosophy and Religion." Its inclusion in this series is justified by the philosophical standpoint from which Mrs. Mackenzie views her subject: the purpose of the series is followed in the popular tone of the treatment.

Mrs. Mackenzie considers first the value of freedom as an ultimate end in education, and, secondly, its value as a means in education in relation to the stages of development of the child. She proceeds to give a somewhat gloomy picture of the practical restrictions on the freedom of action granted to teachers working in England, and a cursory consideration to their training. The authoress then deals at some length with English conditions, and glances at American and Indian education, in her discussion of educational freedom and the State.

The unity of the book suffers from an attempt to treat of too many aspects of its wide subject in a limited space. In particular it suffers from the attempt to include both a general philosophical consideration of educational freedom and a survey of the practical conditions affecting the application of free methods in education in England and in other countries.

Mrs. Mackenzie finds her justification of freedom in education upon a philosophical estimate of the fundamental value of the spiritual aspect of human life, which demands for its proper development and expression an environment of physical, mental, and moral freedom. "When we postulate freedom as an end in education . . . we aim at setting free in turn all the various elements which constitute . . . man—so that he may become a self-controlled, self-governing agent in life, and a free co-operator with the spiritual forces of the world." "Education is fundamentally a spiritual process, and . . . freedom, rightly understood, provides both the goal and the means of attainment." Unfortunately, the metaphysical exposition of the spiritual destiny of mankind is so brief as to be rather dogmatic than persuasive, and at times shows some lack of clarity in the philosophical thought of the writer.

The introduction, however, leads on to the most valuable chapters in the book—those in which Mrs. Mackenzie shows the relationship between free methods of teaching and of moral training, and the varying stages of development through which our children pass during their school years. These chapters should prove inspiring and suggestive to parents and teachers who are anxious to gain some knowledge of the newer ideas of psychologists and educationists, and some guidance in the practical dealing with children along these lines. Here, and throughout the book, there is frequent shrewd criticism on such varied aspects of our educational practice as the tendency to regard only intellectual development in our schools, our tendency to ignore the immense variety of temperament and personality among school children, and the over-pressure to which we subject our teachers in training.

There is much psychological wisdom in the writer's injunctions as to how teachers and parents may guide and help the children from stage to stage of their moral and mental development. This makes it all the more regrettable that Mrs. Mackenzie does not explain the underlying psychological principles upon which her maxims are founded, nor even point out that the scientific study of psychology and education has had any part in contributing towards our present understanding of the processes in the development of the human personality. Indeed, at some points in her book, she seems to take an exceedingly narrow view of the scope of scientific study, contrasting, as she does, "the iron necessity of natural law," which applies to the material world, with the "free creative life" of the spiritual evolution of man. This attitude appears somewhat inconsistent with a subsequent unexplained acceptance of the natural laws of heredity as applying to mankind. It is significant in this connection that the very interesting bibliography appended to the book contains the name of only one book on psychology—Jung's "Psychological Types." It is evident that the writer's interests lie mainly in the philosophy of education. It is, nevertheless, unfortunate that a book on so widely interesting an educational subject, and one in a series specially addressed to the general public, should omit to make any attempt at interpreting that new expansion of scientific methods of work which is represented in the investigations of present-day psychologists.

There is another aspect of educational theory which is under-estimated in the book, and in under-estimating it Mrs. Mackenzie tends to vitiate her constructive suggestions towards administrative educational reform. Her fundamental philosophical contention is, that since freedom constitutes the ideal condition under which man's spiritual nature would have most opportunity for expansion and development, therefore we should always strive to secure, in our modern world, the minimum of outside interference for the children, for the teachers, and for the schools themselves. The writer ignores the necessity that all educational ideals should be relative to the social needs of the people and of the time, if they are to be of real use in furthering the spiritual evolution of mankind.

At the same time, it is clear that, at several points, Mrs. Mackenzie feels the weakness of her idealist position. As an advocate of freedom she is keenly alive to the evils of Government control of education in England. Yet her sound common-sense forces her to admit the impracticability of her own ideal for education—that of its control by an aristocracy of the most spiritually-minded in the community. She suggests a compromise, in which her philosophical principles dim her clear practical vision. It is suggested that there should be set up in England a peculiarly ill-defined and unwieldy central advisory committee on education. As a matter of practical statesmanship, it is obvious that the influence of such a committee on the educational policy and administration of the Government could not but be highly ineffectual.

Again, Mrs. Mackenzie considers the social conditions in such widely different countries as the United States of America and India, and finds in these, too, reasons for modifying her advocacy of complete freedom in education.

It is when the writer forgets her philosophical ideals for the moment, in showing how the teacher may help the children to become citizens

worthy of real freedom, that she seems to stumble unawares on her most effective plea on behalf of free methods of education. She pleads that we should substitute training in self-government in free activities for that blind obedience and docility which we used to demand from our children. She points out that we see the results of the old methods of training in a people to-day who "are only too ready to follow leaders . . . but do not know how to choose them." Mrs. Mackenzie makes this plea as a mere side-issue of little importance. But she could scarcely make a more cogent point in favour of educational freedom, particularly as promoting social evolution in our own day, in view of the problems at present confronting our modern democratic communities.

JANET G. MACGREGOR.

## Report of the Departmental Committee on the Training of Teachers.

### I.—THE TWO-YEAR COLLEGES.

THE character and function of the Two-Year Training College was perhaps, the most important single problem for investigation before the Departmental Committee. They had, in the first place, to examine its right to exist. Careful arguments lead up to the conclusion : "That, except for graduates and certificated teachers, the training college course should extend over 'not less than two years.'" This recommendation gives as it were a charter of liberty to the existing colleges. The phrase "not less" is important, especially when it is taken in conjunction with the recommendation that "the opportunities offered by a third year of training should be more fully utilized." The Committee contained members who would reduce the two years to one. If their policy were carried out, it would result in a disastrous breach in the teaching profession, for between the graduate with four years' post-school study and training, and the non-graduate with only one year, an intellectual gulf would yawn almost too wide to cross. The growing unity of the profession would be gravely imperilled. It is difficult, moreover, to understand how those who are themselves teachers can advocate entrance into the profession at so early an age as nineteen. Administrators have, perforce, to think of economy, and of an easy and adaptable supply, and these ends are the better secured the shorter the period of preparation, but the ends of education, however, are not thus reached.

In the face of this menace the recommendation "two years at least" is, indeed, a charter of liberty. Two years give opportunity for the development of courses of various type, adjusted to the needs of different students. Above all, two years provides a foundation from which further courses can develop, for within this period many students can find their special gifts and their individual bent. Already a certain proportion carry their studies in some particular direction to a satisfactorily high level in a third year, and there is no reason why, when third year courses are further developed and established, and the connection between the colleges and the Universities strengthened, that fourth year courses should not then be instituted. Thus, ultimately, new degree courses could come into being. These would differ from the present graduate courses in degree of continuity, and would provide an ever-increasing variety of preparation for the profession. Such an outlook is full of hope. Variety is almost the first requisite in a system of training. We have it at present, and we hope for it more abundantly, so that the profession may be distinguished for the variety of personality, of outlook, of ability, and of experience to be found within its ranks.

The disappearance of the student teacher year\* would affect the work of the colleges in practice rather than in principle, for already almost 50 per cent. of a given year may have had no experience in teaching before

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\* Recommendation 21.

entrance. In practice, however, the increase in number to 100 per cent. would present a formidable problem to solve, especially for those colleges which are situated in areas but thinly provided with schools. The transportation of students is already a difficult matter, and, if part of the practice is taken in the students' home areas, the problem is not wholly solved. The young teacher is not in the position of an apprentice, who may be required to learn a process by repetition until he is perfect. He resembles rather a research student in a laboratory, who is finding out on what principles certain processes develop, and how certain results can be secured. If he is to have the help he needs, the college requires at its disposal a period of twelve weeks in which to observe his capacity and bent. The results of the student's experience, moreover, need to be carefully garnered and used in illustration of the study of the principles and methods of teaching.

The Committee had no reference to enquire into the curricula of training colleges, and, apparently, they took no evidence on the subject. They do not hesitate, however, to make some bold recommendations. These are not very happily phrased. To say that the value of the course would be increased if it were given a single purpose is an under-statement of the truth. Two years is a short time, and the end to be achieved "to train students to become effective teachers" is a large one. Little measure of success, if any, can be attained, if the work is divided into unrelated departments, and the purpose is realized only in snatches. A unity of purpose is a first necessity in a training college course. The various parts of the curriculum must correlate with, and illustrate each other. The study of methods and principles must be fertilized by practice, and practice enlightened and made fruitful by reading and discussion. The whole course, not part of it, is thus vocational. But what is the vocation of the teacher? Thring's definition of education provides us with suggestion: "The transmission of life through the living, by the living, to the living." A teacher's vocational course translated into terms of curriculum must certainly be a liberal and inspiring course, and it must be broad based, not on part of his work, but on the whole vocation. An efficient teacher will master the technique of subject-method as part of his equipment, but to base a course upon subject-method\* is to put the cart before the horse.

Although the report states that a unity of purpose is necessary in a training college, yet the thought of the Committee does not appear to rise above the dualism they deplore. They seem to regard a student as standing still as regards his general educational development at the end of the secondary school stage, or supplementing his knowledge up to that point, and then acquiring, as it were, in another department, the power to present his knowledge. Such expressions as "A teacher student . . . will usually have carried the study of the general subjects of the elementary school curriculum up to a point at which the learning of more facts ceases to be the main consideration," are not reassuring. Knowledge is not a body of facts which can be accumulated by a certain age and then preserved intact. Knowledge must grow and change with the development of

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\* See Memorandum A : Recommendation 3.

mind and personality, for, if it does not do so, it dies out, or becomes mere dead memory and not part of living experience. "A museum of dead trifles" is a not inapt description of the mind of a teacher whose "knowledge of facts" has not grown or has been merely "supplemented" since the school stage. The words "the more important thing is the study of principles, thinking about subjects, reconsidering them in the light of an active purpose," do, indeed, describe any post-school work worthy of the name. The more advanced the work a student can do in a Training College, the better able he is to consider that subject as teaching material. There is no necessity to make a division in principle between the subject on which the student will spend more time ("the advanced subject") and those on which he will spend less. The whole curriculum should be overruled by the main purpose of the course, and there should be no division as between studies vocational and studies non-vocational. The length of time at the disposal of a given subject will be the main factor in determining the methods of its attack. During the two years of a post-school course the learner must, as far as possible, "put away childish things" in matters intellectual, and thus make the transition from the stage of the school boy or girl to that of the student. Whatever is studied at this stage must, within the limits of time allowed, partake of the nature of University work. It must provide varied opportunities for growth in knowledge, through reflection, assimilation, and application, for thus alone will be born some creative power. Without any creative power the teacher does not "live," and cannot, therefore, "transmit life."

The recommendation that the training college course should aim at enabling those who take it to teach "all the ordinary subjects of the public elementary school curriculum" is at the present stage of educational discussion particularly open to debate. There is nothing more criticized in our educational system to-day than the war which the separate subjects are making on the formation of a body of knowledge and on the growth of intellectual interest in our pupils. The number of subjects, each separately treated, and each with its own claims, has in innumerable cases prevented the growth of habits of reading and independent study, and led to merely scrappy and superficial knowledge. Many pupils leave a secondary school so far uneducated that their general knowledge can only be tapped by referring them to a particular subject and to the particular lessons they had in that subject. They cannot by themselves use or apply what they know, for there has been no vital connection between the subjects they have studied, and their multiplicity has left no time for that independent browsing in which a studious child could indulge under the older régime. We want to get away from this tyranny and not fasten it on the schools. Moreover, what are the "subjects" the Committee have in mind? Are they the subjects mentioned in the Code? If so, these so-called "subjects" have grown in complexity every year, and constantly reproduce themselves by division. "English" was once represented in most elementary schools by the study of a reading book. Now there is verse speaking, dramatic production, the use of a class or public library, etc. Once it was enough to teach children to sing songs at sight, now there is ear-training, musical appreciation, eurhythmics, the school orchestra—and after all these things appointing bodies seek.

Meanwhile Admirable Crichtons are few. Part of the solution of the problem surely lies in the recognition that it is not necessary for children to learn every "subject" at the same time and all the time. Many a teacher wastes his own and his children's time by devoting valuable time table hours to a "subject" of which he knows little, when real progress might be made if he taught more of what he does know, and taught it with larger vision and more inclusive scope. No essential element in a child's education need thus be neglected, if the syllabuses are wisely controlled by the head. Teachers would then insensibly widen their own knowledge, as well as that of their children, and widen it in the right way—by working outwards from the central body of their knowledge—thus avoiding the formation of watertight compartments. More would be learned and with more zest, and how children learn is quite as important as what they learn.

Thus, in the training college course it is essential that students study those subjects which they can study with profit, so as to cultivate this wider vision. They should find out, for example, how history may be taught through art and handicraft, geography through poetry and tales, etc., and it is partly in this conscious exploration of what knowledge any particular "subject" does include, and of its relation to other subjects, that the training college course becomes vocational. In this exploration old facts are freshly interpreted, new facts are learnt, and the method of their presentation to children is studied.

The specialization of students in the training college course is rightly connected with the specialization of teachers in an elementary school, but the type of specialization to which the Committee refer is not that usually found in elementary schools. "It was thought that elementary schools would be increasingly organized on a basis which would allow a teacher in many cases to teach not all subjects to a class, but one or two subjects throughout the school." This type of specialization is appropriate to the secondary school stage, but children under twelve, at any rate, ought not to have a different teacher for every subject. They need a class teacher, who knows them well, and who takes all their work with them, *except* one, or two, or, possibly, three, subjects. Their teacher is then able to take other classes in his main subject. This type of specialization has surely grown in certain areas and it is appropriate even to the small school with two teachers. The training college student should thus be prepared to be a competent class teacher, but this end will not be achieved without damage to education if it is interpreted as involving a separate treatment of "each of the subjects in the curriculum" during the period of two years.

The Committee display an optimism that will not be shared by those whose work keeps them at close quarters with the training of teachers. They refer to the complaint that "some young teachers have been found wanting in their power to teach the fundamental subjects." Their solution is lectures on the teaching of these subjects followed by a test of proficiency. Whatever the colleges may have omitted in the past, lectures on the teaching of English and of arithmetic have surely been included, and in any case the test of proficiency has been supplied by compulsory questions in the Certificate Examination. Are there no complaints about either of these "fundamental subjects"? The training college is not, unfortunately, a machine into which a young person of eighteen can be

put to be turned out a competent teacher at twenty. There is no royal road to the abolition of relative inefficiency in so exacting a calling, and there are a great many causes which create it. The State, the parents, and the teaching profession must work together to raise the whole standard of education. If we look back fifty years we may feel an optimism which would be denied us if we relied only on the measures advocated above.

The problems raised by the constitution of the two-year colleges are the main theme of Memorandum A, but the absence of the evidence on which some of its most sweeping conclusions are based make it difficult to discuss it adequately in a short space, except, perhaps, in recalling the words of Cromwell, when pressed for time in argument :—“ I beseech you, gentlemen, by the mercies of God, to consider that it is possible that you may be mistaken.”

In conclusion, we may ask what does the report do for the two-year colleges beyond giving them the right to exist ?

It raises the standard of educational attainment on entrance by the substitution of an additional year at school for the student teacher year. It speaks strongly on the necessity for securing a first-rate staff by offering salaries “ distinctly higher than those authorized at present,” and it suggests grace terms and experience in inspecting as methods of recuperation. It declares that a demonstration school should be made an integral part of the equipment of every college and, most important of all, it points to the Universities as the proper allies of the college in the certification of the students, and the arrangement of curricula. It encourages the development of third-year courses, and of short refresher courses. Last, but not least, it recommends that the Treasury grant continue to be paid as a capitation grant and be stabilized over a period of time.

If all these recommendations are carried out, the whole system of training will be strengthened and enriched.

The curriculum to be followed must, in the last resort, be worked out by each college. Though general principles be laid down, there must be, as there is at present, freedom for individual colleges to express their character and their genius. Though much of Chapter VII seems to reveal a desire to standardize the intellectual life of the colleges on somewhat crude and meagre lines, yet we cannot but think that this is mainly due to the lack of time and thought available for a large subject excluded by the terms of reference. With the main contention that a two-year college should be inspired by a unity of purpose and that the purpose should be a vocational one, all will agree.

WINIFRED MERCIER.

## II.—THE RELATIONSHIP BETWEEN TRAINING COLLEGES AND UNIVERSITIES.

I am asked to write especially on those portions of the Report which handle the relationship between Training Colleges and Universities ; and, also, between the Colleges and the Board of Education. But I must refrain from tackling this second problem, since it is part of a large and very controversial issue, viz., the relation between the State and the teaching profession as a whole. If one assumes (as I do, on the whole,

in my recent book) that the teaching body is now sufficiently competent and self-conscious to be entrusted with responsible functions in professional organization, then our view of what the State should, and should not, do, will differ at many points from the findings of this report. But, as a matter of fact, these fundamental issues are not raised. The report comes to us as a very industrious study of current practices ; no large questions are raised for the terms of reference set strict bounds to the inquiry. The Board asked this Committee to tender advice on the assumption that the State will continue to discharge its obligations in maintaining "a supply" of teachers in the same spirit that it has shouldered this burden for the last half century.

Relations with the Universities are more manageable, for the report makes definite recommendations which can be handled in a short compass.

Nos. 35 to 37 (also No. 43) deal with degree courses, and rightly condemn the practice of preparing for degree courses simultaneously with professional studies. The four-year plan, by which an intending teacher can first make good as a degree student, with the same opportunities, both in his Faculty and in his social life as all other undergraduates, has justified itself from every point of view. I agree with the view that the three University Colleges (Exeter, Nottingham, Southampton), together with the newly-chartered University of Reading, should, in this respect, be put on a level with the Universities, and be entitled to establish four-year courses. I differ gravely, however, from the advice that such courses should be sanctioned for students entered at colleges which have no University status. It is difficult to see the ground on which such complicated arrangements are advocated, for if a young man is qualified by ability to become a University man, let him go to a University ; but if by some misfortune he has not fulfilled this ambition and is landed in a two-year college, are you to rearrange the whole plan of a two-year college in order to remedy the carelessness or ill-luck that this case has displayed ? I am sure that the complications arising from having two-year, three-year, four-year courses all in one college, especially if it be small in numbers, are not worth the trouble. The report points out (p. 106) one disadvantage, viz., the division of "allegiance," but I should consider it a still more serious drawback if a college whose staff is designed to train comparative youngsters of 18—20, is also required to handle the matured minds of graduates. I am convinced that we are tempted to over-organize far too readily. If a college is meant to be a college, with a two-year life, let it be content with that rôle. If, on the other hand, Exeter or Nottingham are deemed competent for University life and teaching, let them plunge boldly for the four-year course, and put all their training college students on the footing of full fledged University men and women. We took the plunge in Manchester about 1910, at a time when most people said that elementary teachers could not spend more than three years at the outside in preparing for their life's work.

The real facts about degree courses are not faced in this report. The motives that lead young men and women to seek degrees are left on one side, but these are the real factors that have to be taken into account. When Burnham Scales give money value to degrees, when every one knows that all the plums of the profession will fall to those who do well

at a University, ambition will force its way. I do not say that such motives are of the highest, even when they are conjoined (as, of course, they usually are) with real desires for learning, but they are in the forefront. It is legitimate to desire a degree, but it should be earned fairly, without, *i.e.*, neglecting the other purposes for which grants are given—when the postulant makes his bargain with the Board of Education ; and it should be a real degree, indicating active participation in University life and teaching.

But if a college (whether or not it is geographically contiguous to a University) is not prepared to sink itself into the larger world of a University ; if its rôle is to supply the equally necessary and more numerous type of teacher who can only enjoy two-year training, it should, in my opinion, drop any pretence at University connection or qualification. All that it should ask is that, if in later life its students find means to become University students, the two years from 18 to 20 spent in study should be accepted as equivalent to a year of University life ; also, that some of the attainments recorded on a certificate be accepted among the minor subjects required for a degree.

No. 39 suggests more encouragement to third-year students and the utilization of the Universities in this connection. The report does not say whether this third year is to follow immediately upon the two years. I feel pretty sure that the extra year will not be greatly welcomed if the recommendations of Chapter IX are adopted, requiring the trainee to spend a year on probation. But a third year, taken when a teacher has passed the age of 25 or so, is often a great boon ; and some teachers, in the future as in the past, will welcome the chance of spending the time in a British or foreign University, working under distinguished teachers in some branch of learning, including, let us hope, the University departments of education. The stress laid on diplomas and courses is, however, unnecessary. Universities welcome the attendance of able men and women of mature years, even if they can only come for one session. But here again if a teacher is not a graduate, he will be anxious, first of all, to secure the degree title, and anything short of that will not greatly tempt him, unless he is the exceptional man who appreciates learning very highly for its own sake. I am not theorizing. All of us who have worked in departments of education are consulted again and again by teachers anxious both to advance their own powers and to secure a title which means so much both in reputation and in pocket. The two sexes cannot, of course, be viewed in the same light as things stand at present, but as regards boys intending to be teachers, it is evident by now that any lad of parts who has passed a matriculation examination is following a blind alley if he does not enter on a programme which will somehow provide him with a degree title before he is thirty years of age. I do not wish to criticize adversely a report over which such immense pains have been taken, but I am bound to say that on practical points of this kind the Committee seem to me to have been out of touch with reality.

The same stricture applies to Nos. 40, 41 and 42. The University teacher certainly is the better for giving a small portion of his time to extension work, to service on governing bodies, and to conferences ; also, I may add, to work with his colleagues of the T.C.A. and THE FORUM. Width of interest, extension of sympathy are good, and I should

be the last to deprecate all these modes of interchange. Their benefits, however, are not distinctive of the problem put to this Committee. All colleges—agricultural, technology, art, and the like—which rank below the University, are the better for coming into some contact with the distinctive contributions that a University can make. I am quite sure, however, that in English education our danger lies in the other direction, in the dissipation and frittering away of our interests, away from our primary duty, to our subject and to our students. I need not repeat what I advanced in a recent issue of **THE FORUM** on this theme: We need simplicity of organization and concentration of effort instead of further complexity of machinery. The one point on which I should support these University recommendations is No. 38, where the Universities are invited to share in the certificate examination. Just as the Universities among themselves exchange external examiners, so we should be ready to lend a helping hand to the staffs of training colleges in maintaining adequate standards. I say “lend a helping hand” advisedly, because there are others besides University lecturers who could act on the panel of examiners. The report points out, quite rightly, that the task would be very heavy in the most important subject of study, viz., education itself. But why should the work fall solely on University professors and lecturers of education departments? We belong to a profession which contains numbers of highly-qualified men and women, and a professional examination is, *ipso facto*, one that should come within the cognizance of the profession as a whole. The real reason why this reform fails to be adopted must be sought in finance (see top of page 108). If students take the Board’s examination the cost is a public charge; if any other course is adopted, either the students must pay a heavy examination fee (as the report suggests) or the college funds are mulcted. The way out is clear enough, and the decision lies with the Board of Education. As soon as the Board accepts the principle of No. 38, it will adopt it for *all* colleges, and will pass a self-denying ordinance, foregoing its right to conduct<sup>1</sup> the certificate examination. Thereupon it will decide either to make an increased grant adequate to cover the expenses of examination, or it will empower all colleges to impose an examination fee as the report desires, and as is already the custom in University examinations for teachers’ diplomas.

In conclusion, may I point out one grave omission. This chapter handles the Universities as places where students can take four years instead of two, and from which examiners, extension lecturers, college governors, can be obtained; but it fails to emphasize what University teachers themselves feel to be the most absorbing element in their duty, viz., study and research in their subject, side by side with a company of graduate students of education. University departments of education have gradually emerged from the status of a two-year college, and are now recognized within the Universities as professional “schools” parallel to departments or faculty of medicine or law. As such, they will be looked to more and more to assist in the provision of the intellectual leaders in our profession (I say “assist” advisedly, for they can never make an exclusive claim). Now, so far as this report is concerned, the staffing

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<sup>1</sup> It will of course retain a place as “assessor.”

of training colleges, whether elementary or secondary, is a problem that touches closely the functions of University departments of education. For both the report and the alternative recommendations made by Mr. Chambers and others anticipates a staffing for these colleges which will emphasize the professional side rather than the academic side. If this is to happen, whence will the training colleges turn to find their staffs? Evidently they must look to the Universities, in their departments of education (including, of course, psychology and allied studies). This is the vital connection, vital to intellectual interest and research in our profession. We are passed beyond the stage when a University department of education can be conceived just as a college with a year or two added to a Government course. The Universities here undertake a far heavier obligation, both to their fellow-teachers and to the cause of education as a whole. They are pioneers in study and research, working in a field, both scientific and professional, which presents grave difficulties to its exponents and has encountered obstacles and discouragements such as fall to the lot of no other branch of University study. Is it not an omission from this report that no sense of this service is even glanced at? I would suggest, therefore, that the following would be very proper as an addition to the recommendations:—

- (x) Since the training colleges will seek in the future to be staffed by University graduates with high qualifications as students of education, the University departments of education need to be amply sustained and staffed both for the needs of the graduate students who study education after having passed through other Faculties of the University, and for the purposes of investigation and research;
- (y) That the teaching profession and the Government be requested to consider the equipment and resources of these departments so that they may be enabled to discharge these functions on a scale commensurate with the high standards of achievement now expected from British Universities.

I have added "the teaching profession," for we must look to our fellow-teachers in schools and colleges, quite as much as to the Board, if we are to find comfort and support in years to come. If our Training Colleges and departments of education have behind them the goodwill and the confidence of the rank and file, they can look forward without anxiety to the future, even though "the economy of public funds" was stressed by an anxious President of the Board when he set this committee to work.

J. J. FINDLAY.

### III.—THE SELECTION AND PRE-COLLEGE PREPARATION OF THE ELEMENTARY SCHOOL TEACHER.

THE report of the Departmental Committee on the training of teachers for public elementary schools would have been more useful, as a suggested programme for a definite advance, had its conclusions been arranged to indicate, separately, (a) those which might form a comprehensive policy to be realized, as a whole, after a lapse of several years; (b) those parts which might be achieved within, say, the next five years or so; and

(c) that which might be done in the immediate future. Such an arrangement would probably have obviated, to some extent, the appearance of hesitancy and absence of clear-cut policy which characterizes much of the report.

After pointing out that it is concerned with the educational needs of about 85 per cent. of the boys and girls who are between the ages of five and fourteen years, the report accepts the definition of the purposes of the public elementary school as set forth in the Board of Education's Code of Regulations. There follows a survey of some of the qualities needed in the teacher who is to attempt, with the prospect of a reasonable measure of success, the accomplishing of these aims. This leads to the conclusion that, as an ultimate objective, the Board of Education should recognize none but certificated teachers, and it is definitely recommended that no further supplementary teachers should be appointed.

As regards uncertificated teachers, it is advised, so long as new entrants to this grade continue to be recognized, that (1) their standard of attainment in general education should be the same as that required for admission to a training college; (2) they should successfully complete a short course of professional study, including the methods and principles of teaching; and (3) their only avenue to full certification should be through a full course in a training college or University Education Department, since the discontinuance of the Acting Teachers' Certificate Examination is advocated. This is disappointing, for it clearly contemplates that, in addition to the 33,000 existing uncertificated teachers, new entrants to this class are to be accepted for an indefinite time, and—worst of all—with no time limit on the service of individuals in this capacity. The omission of such limit is one of the most serious defects in the report, for, without it, there will result a new body of permanently unqualified teachers. In the report, though not in its conclusions, the hope is expressed that the Board might consider limiting the recognition of uncertificated teachers to rural areas, as a first step to their final elimination. This, surely, might have been made a definite recommendation. Also, as the number of existing men uncertificated teachers is only 2,000—forming about 5 per cent. of the total number of men teachers—it might have been possible to advise that, after an early date, no men should be accepted as uncertificated teachers.

The short course of professional study proposed as a condition for recognition as an uncertificated teacher is open to objection. It is reminiscent of the "guinea girl." Whether they be termed short or intensive, such courses tend to result in little more than the acquisition of potted and ill-digested material, and it is doubtful whether the training colleges will willingly lend themselves to aiding this proposal. A further objection is that such courses would probably lead to the continued recognition of this class of teachers, on the ground that they had been trained for their work.

Whilst it is to be welcomed, the proposed abolition of the Acting Teachers' Certificate Examination calls attention to the position of existing uncertificated teachers. The report advises that, providing they are over 25 years of age, have not less than seven years' experience, and are specially recommended by the Local Education Authority and by His Majesty's Inspector, they be allowed to qualify as certificated

teachers by completing a one-year course at a training college. In the interests of the schools and of the profession, some method of reducing the number of unqualified teachers is desirable, but objection can be taken to the plan proposed in that it would place such uncertificated teachers as benefited from it in a favoured position compared with that of those certificated but untrained teachers whose certificates have been gained in recent years, and who are barred, by codal regulation, from holding head teacherships, unless they complete satisfactorily a one-year training college course. It has been suggested, in certain quarters, that the one-year course, recommended in the report, would prove difficult, for financial and other reasons, for those uncertificated teachers of, say, 12 years service or more. For such cases it is said that part-time courses "equivalent in duration and educational value to a one-year training college course" would be preferable. Such a proposal is decidedly objectionable, both because of the pressure it would put upon the teachers concerned and because it would tend to cheapen the certificate. It may be too much to expect the local education authorities to grant maintenance allowances, enabling selected existing uncertificated teachers to take the full two-year college course, but these teachers would undoubtedly derive much benefit from having a period free from the calls of school work, in which they might widen their knowledge and review their methods in the company of younger people preparing for the same work. Most training colleges will, no doubt, be willing to admit some of these existing teachers to whatever courses may be thought most desirable, but would do so with greater heart were there any guarantee that a new crop of unqualified teachers would not be allowed to grow.

The report proposes that intending teachers, as far as practicable, should receive a secondary education in a secondary school, and should continue there until at least a year after passing a first examination ; proceeding then either straight to a training college or University, or to work in school as uncertificated teachers. The provision of more secondary school accommodation is, therefore, urged. It is recommended that student teachership and pupil teachership should be discouraged, and that such pupil teacher centres as still exist in urban areas should be abolished by merging them into the secondary school system. For rural areas, however, where a secondary school is not yet accessible, it is advised that the rural pupil teacher system should continue. The first of the two latter proposals will be generally approved, though there is a timidity of decision which is to be regretted, and a definite recommendation might have been made that student teachership and pupil teachership should, after a certain date, be discontinued. Teachers generally and training college authorities are agreed as to the desirability of this step. The decision with respect to rural areas is based on the importance of securing recruits for the teaching profession from rural districts. It will be agreed that it would be most undesirable that all our teachers should be drawn from urban areas, even though some 80 per cent. of our population be found there. It by no means follows, however, that this would be so, if the rural pupil teacher system were abandoned. Secondary schools are already available in some rural areas, and it is stated in the report itself that in 1922 only 74 rural pupil teachers entered training colleges, forming

only 1.1 per cent. of all the students admitted in that year. It is also recorded that of 545 rural pupil teachers, whose recognition terminated in 1920, as many as 40 per cent. did not qualify either to enter a training college or as uncertificated teachers. It seems a pity to advocate the continuance of an admittedly defective and out-of-date system for such slight gains, especially as this is likely to delay the establishing of a secondary school system in its place. For the latter reason, it is regretted that the report does not propose to disallow the central school as a substitute for the secondary school in preparing intending teachers. There is need for more secondary schools in both urban and rural areas, and they should be provided as soon as possible. Meanwhile, there seems to be little justification for continuing the rural pupil teacher system, with its earmarking of the boy or girl at the early age of 14 years (despite the declared policy that there should be no earmarking before 16 years of age), and its dependency, for academic instruction, on the head teacher of the elementary school—an antiquated system of forty years ago which was only revived, as a desperate measure, in 1913, at a time of great shortage of candidates for teaching.

The Departmental Committee had before them the suggestion (advocated in the Memorandum "A" of Dissent) that secondary school pupils might qualify for recognition as certificated teachers, by passing a second examination and completing successfully a one-year course of professional training in a training college. This suggestion was rejected, rightly, on the grounds that the vocational education of the intending teacher implies growth and time for reflection. Those with experience of training college work know that there is usually a marked development in the student, during the second year of his course, of power of understanding and realizing the possibilities of applying educational ideas and ideals. It is also a general experience that students entering a training college after passing a second examination show, as a body, no less need than those who enter with a lower qualification, of a lengthy period in which to examine their knowledge and experience in a new light—*i.e.*, how children of various ages and dispositions can best be helped by them to acquire knowledge and to benefit by their experience. This, certainly, cannot be done effectively in less than two years. The case of the students in question is not paralleled by that of their school-fellows who enter a University training department for a four-year course. The latter have been away from school for three years before entering on their diploma course, and, during that time, their minds have matured in the freer atmosphere of University life. It is precisely this maturity of mind which the student straight from school lacks, no matter what his academic attainments may be, and he would not gain it, to a satisfactory degree, by one year's post-school training. It is also by no means to be accepted as proved that the pupil who has passed a second examination has arrived at the academic standing connoted by the final examination of a two-year training college course.

The recommendation that the minimum examination qualification for admission to a training college, or to uncertificated teachership, be the passing of a first examination, is open to the criticism that already, in practice, a higher standard than this is operative so far as admission to the training colleges is concerned. It is doubtful whether in any college, at

the present time, there is a student who was admitted on this bare minimum. A candidate with less than three "credits" has little chance of admission, and, in several colleges, very few are admitted with less than four "credits." An increasing proportion enter at matriculation standard, and there is a steady increase in those entering on a pass in the second examination. The retention of a mere pass in the first examination as the minimum requirement is thus misleading and results in many young people wasting their time in applying to college after college, with no chance of their applications succeeding. Moreover, this throws unnecessary work on the principals and secretarial staffs of the colleges. It is not uncommon, in the women's colleges especially, for over a thousand applications to be received for, say, 150 places. It would appear, therefore, that the majority of candidates chosen for admission to the training colleges will have obtained practically the same number of "credits" as is required for matriculation, but not necessarily in the same subjects. It follows that an unspecified pass in the first examination is too low a standard, which should approximate to that of matriculation or the equivalent. The standard proposed in the report would nullify, in practice, the conclusion that the standard for acceptance as an uncertificated teacher should be the same as that for admission to a training college, thus resulting in the growth of a class of teachers stamped with inferior qualifications at the outset. On the other hand, the raising of the standard to that suggested above would be likely to lead to a considerable reduction of the number of recruits to the ranks of the uncertificated teachers—a consummation not to be entirely deplored.

The recommendation that at least a year should be spent at school in study, subsequent to the qualifying examination, is welcomed, but it is hoped that the time would be spent in working through a suitable course, with opportunities for cultivating a sense of responsibility, and not, in general, for the purpose of obtaining a higher examination qualification.

That students are to proceed straight from school to college, at the age of 18, implies the general abandoning of a preliminary testing period of aptitude for teaching. It has been fairly generally felt that such a period is very illusive, and, on the whole, not worth while. The student is hardly at the stage when he can be said to know for himself whether he has teaching potentiality, and, in practice, the number of rejections on the judgment of others has been small. It is probably safest to trust to the heads of the secondary schools, actuated by their interest in their pupils and in their profession, recommending only those who, they believe, have a reasonable chance of developing into satisfactory teachers.

It is to be regretted that the attractions of elementary school teaching are not yet, apparently, sufficient to secure an adequate supply without the use of the device of making grants in aid specifically to those who declare their intention of becoming teachers, even though it be advised that such declarations should be restricted to those over 16 years of age. It is hoped that, in the near future, the teaching profession may be able to rely, for its recruiting, upon its own amenities as compared with those of other walks in life.

T. P. HOLGATE.

# Foundations of Education.

## VOLUME I, AIMS AND ORGANIZATION.

By J. J. Findlay, Professor of Education in the University of Manchester.  
(University of London Press : 1925. Pp. xi+269. 8s. 6d. net.)

PROFESSOR FINDLAY has laid his foundations in this first volume truly and well. The super-structure cannot be adequately or closely examined until the second volume is in the reader's hands, and our author realizes in his preface that this fact makes any judgment on the first volume necessarily very provisional.

Where Dr. Nunn's great work, to which Findlay pays frequent and deserved tribute, is biological in its standpoint, this new and equally important book is rather sociological in outlook, and to me this is especially welcome. I have long hoped to see Graham Wallas' epoch-making treatise on the "Great Society" exercising its rightful influence on pedagogical reflection, and Dr. Findlay's book is a very welcome sign of this, and promises to open the way to other books released from too great a dependence on the mathematical and physical sciences. Findlay's "Introduction to Sociology" even more than "The School" heralds this new approach to educational theory, and in Nunn's "Data" and Findlay's "Foundations" we have the most complete modern exposition of general principles which is available. Very welcome, too, to the present writer are the many signs in the "Foundations" that Findlay recognizes the importance of the æsthetic element in education. Not yet has education been approached *ab initio* from æsthetic, but Findlay, under the admitted influence of Croce and Gentile and of the notable work of the Educational Handwork Association, the Uplands Movement, and similar endeavours in which he, with J. A. Green, has played so pioneer a part, is very conscious that neither in the purely intellectual, nor in the purely instinctive; neither in the biological nor in the psycho-analytical fields, is the supreme driving force in spiritual development to be found. In the passionate pursuit of the beautiful that force resides. Hence, where Nunn places the main weight of his argument upon individuality expressing *horme* and *mneme* (unconscious will and unconscious memory), and studiously avoids the word personality, Findlay, to our infinite relief, is not afraid thereof, and takes and uses it though less fully than one could wish. Perhaps he leans too much on Jung's "serviceable definitions" in regard to this problem of personality—he might have found Lotze and C. C. J. Webb no less serviceable, and if personality has relation to appearance it also expresses reality. Revelation and concealment are inseparable attributes of personality and it is unnecessary to overstress the derivation from *persona* a mask—*persona dramatis*, and it is not the mask but the real person behind the mask who acts.

Far from being depressed at the bewildering variety of formulæ to express the educational end, Professor Findlay welcomes the vitality thereof: he neither anticipates nor desires a universally accepted statement of the end: the Catholic faith in "the nurture of the human spirit,"

in the obligation "to see ourselves and our neighbour in the light of the Universal," is not so much a faith in these very terms themselves as in their very truth, which through the medium of another person might be as validly but differently expressed. But you must not too curiously enquire what is the Universal in the light of which rather than of Wordsworth's truth we are to live, and not bondmen but neighbourly. The "Universal" may equate with the infinite (and whether this is positive or negative, endless or comprehensive, we cannot quite tell from the "Foundations"); it may be "the whole, past, present, and future." It may even, if our thought be rigorous enough and our courage suffice, prove to be God and the search for God. But so soon as Findlay makes this very catholic confession of faith, he fears he may be misapprehended, and for his *crede* he eventually prints in italics a lengthy passage from Dewey, in which "the ideal is not a goal to be attained. It is a significance to be felt, appreciated." Perhaps Nunn was wise after all not to meddle with this troublesome doctrine of personality, for if perfect personality be in God alone the educator may have to admit not the supremacy of the human spirit, upon which Findlay lays such stress, as the supremacy of the divine. We may have to go back to our catechism. Had he developed the æsthetic implications our author would surely have found worship somehow integral in the goal or end: "the inner life," he writes, "pursues its way in silence." Yes, but not alone: there is company. "Behold, I stand at the door and knock." Knocking—at the door. The apparent opposition between these two concepts of individuality and personality may perhaps be thus reconciled: personality is a mask which each individual wears and individuality is the meaning each person bears.

Findlay proceeds to discriminate between some of the constituent values with which the educator is concerned, and in this analysis the eight-fold scale employed by Keatinge is reduced to four: constituent values resident in body-mind, in art, in social institutions (morals), and in intelligence. Stress is laid on the significance of eugenics on the one hand, and on the insufficiency of merely intellectual pursuits on the other. To comprehend these various values into one system, Findlay revives the plea for "harmonious development" as the educator's guiding motive. But in dealing with various stages of development why attempt to label any one with a final formula? Can adolescence really be adequately summed up as "a period of postponement"? Surely experiment, trial and error, rebellion, loyalty, are all equally characteristic of adolescence and no one phase can exhaust the illimitable. When the adolescent says "This is the limit," it is because he objects to limits, being himself illimitable. And adolescence is surely impatient of postponement. I cannot think, therefore, that Dr. Findlay is very successful in his attempt to revitalize a formula that has served its little day.

Section II of the book, dealing with the organization of education, is very helpful. I am not quite sure that Findlay is quite consistent in his use of terms here. He has described institutions as abstract, whereas organizations are concrete. Institutions stand for customs, sentiments, ideas, but organization is the process of giving institutions concreteness through their realization in the lives of persons. Civilization is the expression through organization of the demands of institutions old and new.

But in Chapter VI, institutions (which are abstract on p.31) are found to include the family, class, religion, vocation, culture, and the state, national and local. If family is an institution (abstract according to our author's definition), what is the concrete organization through which it is expressed? If religion is an institution (abstract by definition) what is the concrete form it takes? Property is likewise stated to be an institution (abstract, *vide* p. 31); what is its organization, its concrete expression? It would be helpful if p. 31 and pp. 76-77\* could be brought more into line with one another. Findlay does not refer to Bosanquet in this connection (he prefers Hobhouse), but there is much that is extremely helpful to the educator in Bosanquet's book on the State, and Mrs. Bosanquet's book on the Family. But he writes well and helpfully on the State in relation to education, and proceeds to a very useful enumeration of types of schools. Conventual and monastic schools, which have greatly multiplied in this country since 1900, do not seem to find a place. They are not proprietary schools, nor necessarily the property of societies centralized in the metropolis (*e.g.*, the National Society), nor are they always of foreign origin. Their omission shows the difficulty of classifying the schools of England. It is somewhat misleading of Professor Findlay to say that University College, Nottingham, is the property of the City Corporation.

Findlay is not enthusiastic for boarding schools for scholars under 18, but he regards absence from home as essential if the best results of college education are to be secured. Value is rightly attached to all forms of voluntary service and experimental work in types of school and part-time education, and the latter is regarded as the most important field of social endeavour in our time. The adoption of separate education for the sexes is ascribed partly to the women's emancipation movement, and our author hints at some vigorous discussion of this differentiation in the next volume. The remaining chapters do not call for detailed notice, but they contain a great deal of information not always obtainable at short notice, and the discussion of economics of education, of the oversight of schooling and of authorities indicate fresh lines along which the lecturer and student may fruitfully engage together. In the next edition an appendix on the recent Departmental Committee's Report on the Training of Teachers will be indispensable. There are some very careful, cautious, and wise paragraphs on examinations and intelligence tests, and some encouraging remarks on the importance of assistant masters and the need to diminish somewhat the exaggerated status of heads and principals. Some Swiss secondary schools get on very well without head masters at all. Parents' organizations are referred to—there are more of them than perhaps is generally known, and we need not be depressed if the underlying idea grows steadily rather than meteorically. Findlay welcomes the diminished activity of universities in the field of secondary education, but at the Southampton Conference in 1924 there was widespread agreement on the need for a much closer general co-operation and co-ordination between the two. The present volume closes on a note of joyous hope.

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\* Again, on p. 141 the school is said to create an institution. How can the concrete create the abstract?

The long period of organization rather than of practice is drawing to a close, and we are, in our author's opinion, at the beginning of a new and fruitful period of school practice : teachers better trained, with a wider outlook and a better economic position than their predecessors, can now concentrate on the application in school of the best social and political ideas of our day, on the translation into life of that vision without which the people will perish. Less to exercise a salvage function in a society pessimistically supposed to be perishing than to prevent the wider spread of admitted evils ; less to be preventive officers than to be conservators of the positive values of our day, and less to be conservators than creators, builders of the new Jerusalem, such is the task for which, summoned by our author, students and existing practitioners will find in the book foundations full and firm.

ALBERT A. COCK.

## The Growth of the Mind.

By Kurt Koffka. Translated by R. M. Ogden. (Paul, Trench, Trubner and Co. Pp. xi+383. 15s. net.)

THE sub-title of this book is "An Introduction to Child Psychology," and the preface states that it was intended for teachers in the German elementary schools. The book might, however, be more aptly called a discussion of early mental development and of the processes of learning in the light of the *Gestalt* psychology, the psychology of shape or form. Indeed, the book is important, in my opinion, not so much as a contribution to child psychology but as the main exposition so far in English and in book form of the *Gestalt* psychology; and one could wish that Koffka had given some of the space devoted to the treatment of infantile development (little of which is based on the author's own direct observation) to a fuller and clearer exposition of his main principle.

This main principle is that mental development does not proceed by "the bringing together of separate elements, but the arousal and perfection of more and more complicated configurations in which both the phenomena of consciousness and the functions of the organism go hand in hand."

Now a "configuration" is a grouping of mental phenomena in which each member of the group is what it is by virtue of its relationship to other members of the group: thus a melody constitutes a "configuration" and each note affects us partly because of its position in the series; or a bright spot on a dull background forms with it a "configuration." An important factor in such cases is undoubtedly the relationship, but, surely, it is not everything, as Koffka suggests when he says: "A coexistence of phenomena in which each member . . . possesses its peculiarity only by virtue of, or in connection with others, we shall henceforth call a configuration" (p. 131). This, I take it, is a slip in expression, of which there seem to be a number in the book. For a group to consist of items each of which was made what it was *only* by its relation to others would be as impossible as it was for the South Sea islanders to earn their living by taking in one another's washing.

Leaving this criticism aside, what is the special function of such configurations? For Koffka they are supreme in mental development. They exist at the outset: a baby's consciousness is not the buzzing confusion of sensations that William James thought it. Things are apprehended in configurations. There is not, Koffka argues, an original chaos (p. 133), though, later, he makes an explicit reference to "the original chaos" from which repetition of "the same datum" will cause "this datum to emerge—as a specific figure" (p. 323). This, again, is probably a verbal slip, and Koffka no doubt would say that the question of order and chaos is one of degree. Of this, however, I am not sure. For Koffka represents that branch of the *Gestalt* psychologists who refuse to recognize the priority of sensations followed by the perception of relations, because the two processes are really one; he belongs, that is to say, to what Spearman has called the Unitarian school. "A certain order dominates experience

from the beginning." As an example of this, Koffka remarks that "single stimuli" are not the ones which first arouse the reaction and interest of the child, but such as the human voice whose "stimuli and sensations" are very complicated indeed, though, surely, here the unifying is a matter for the sense organ. Again, the process of distinguishing the father's from the mother's face is far beyond a mere response to individual sensations, and this is done at the age of a few weeks.

Configurations, however, appear in quarters less expected. The interesting experiment with the hens is a case in point. For this food is obtained by a choice of a dark-grey tray instead of a lighter grey. When the choice becomes regular, a still darker grey is substituted for the light grey. The hen does not now go on choosing the medium grey, with which the atomistic psychologist would have said the idea of food would be definitely associated. She is a relativist and chooses again the darker of the two presented. The general nature of the "configuration" formed by the relationship between the two colours is the determining factor.

The originality of Koffka's view does not lie in the mere conception of such configurations. Students of Ward and Stout have long been familiar with the idea that knowledge grows by the further differentiation of a whole apprehended in a sense as a whole, but increasingly analysed and regrouped. Nor does Koffka's originality lie in the idea of innate response to grouped sensations apprehended as a group; much of that is implied in the writings of McDougall and many others. His characteristic doctrine lies, rather, in his apparent denial of any other kind of learning, and shows itself especially in a repeated criticism of atomistic and associationist psychology of an antiquated and extreme type, and also of the views of Thorndike in reference to the setting up of neural connections and inter-connections between stimuli and responses.

With the latter I have not space to deal, but I may say that I question whether Koffka does not often misunderstand Thorndike, and I look forward to seeing the latter respond to the challenge thrown down so vigorously in this book. Certainly Thorndike by no means confines the learning process to associations with isolated elements. He repeatedly writes of "responses to situations"; and, indeed, while urging the importance of analysis and the setting up of "bonds" between analysed elements and responses, he emphasizes the fact that "in lower animals and in very young children the situations act more as gross totals" \* and he explicitly maintains, for example, that there are innate responses in infants to human facial expressions.

It must be understood, then, that Koffka not only emphasizes the importance of configurations in mental development; he denies the possibility of learning without them. Even in the case of nonsense syllables he claims that experiments prove learning to be impossible without the material receiving some kind of "figure."

This is so fundamental a point that I must quote the whole passage in which Koffka deals with it. He refers to some experiments done at Berlin University, and writes: "It is a known fact that in learning a visually-presented series of words or nonsense syllables the learner

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\* *Educational Psychology*, Vol. II, p. 34.

never confines himself merely to reading the material over, but involuntarily soon begins to recite it. In this way he both anticipates what is to come, and reaches back for what has gone before. Whenever the observer is forbidden to employ recitation, he finds himself unable to learn the series, no matter how often the material is read over. Indeed, the accumulation of mere readings in these particular experiments seemed to be harmful to retention; for the oftener the material was "merely read," the more repetitions by the "recitative method" were thereafter required before it could be learned. The effectiveness of recitation rests, therefore, upon the fact that "*it leads to a more fundamental and more many-sided working over of the material.*" Finally, K. Lewin, as a result of some ingenious experiments, reached the conclusion "that the learning process cannot be conceived as a connection between separate constructs. . . . Instead of learning syllables one learns to react to a given stimulus with a definite response. . . . *The way is being practised which must be followed later in the reproduction.*"

The "working over," and the "way"—these terms are equivalent to what we have called the configuration. With reference to the facts revealed in processes of mechanical learning, we are, therefore, led to conclude that *all learning requires the arousal of configurational patterns.*

Having thus set aside as not basic the presupposition of the principle of trial and error, which is the principle of "frequency," it follows that repetitions without the achievement of a configuration remain ineffective whenever they are not positively harmful. In the broadest sense, practice means the formation of a figure rather than the strengthening of bonds of connection."

This passage seems to me at least obscure, even if the inferences are not unjustifiable. Taking the second and following sentences "In this way," etc.), it is not at all obvious why reciting the syllables leads necessarily to "anticipating" what is to come any more than silent reading does: or why it should lead any more to the forming of configurations. The greater efficiency of reading aloud may and has been explained on several much more probable grounds. Nor is it clear how "working over" the syllables is equivalent to a configuration.

Finally, to consider the strict logic of the argument it would not follow that because the adult mind with its many acquired configurations tends inevitably to read patterns into a series of impressions, even meaningless impressions (and, undoubtedly, we do tend to rhythmicize such a series), that, therefore, no learning of any kind can take place even at the very earliest stages.

It must, however, be borne in mind that Koffka in selecting nonsense syllables has taken an extreme case, the hardest from his point of view. In everyday life individual stimuli have, at least after the earliest stage, acquired a meaning which itself may be regarded as a configuration. And there is independent experimental evidence (given by Dr. Aveling in his book, "The Consciousness of the Universal") in favour of the view that associative bonds are only set up through conceptual elements.

We turn to Koffka's criticism of the method of trial and error as a possible method of learning. It is certainly true that in some of the experiments with animals designed to test the way of learning, e.g., to escape from a box, the results suggest the use of some intelligence beyond a mere

gradual elimination of useless actions. Certainly Koffka's fascinating experiments with apes do so, as Koffka's exposition of these experiments clearly shows.

The important question for Koffka, however, is the learning process in humans, and to prove that some previously supposed learning by trial and error in animals was not purely learning by trial and error, does not imply necessarily that the method of trial and error *never* enters as one mode of learning in animals or human beings.

More relevant than experiments with animals here is one's actual observed experience in such experiments as mechanical puzzles, mirror drawing, and in learning games of skill like tennis and golf. Surely in such cases we can at times observe progress without being able to refer the elimination and selection of actions entirely to conscious adaptation. At the same time, there is undoubtedly a general guidance of all activity by the conception of an end, and if this is all Koffka is contending for it may fairly be admitted. It was, by the way, fully expounded by Hobhouse and Stout in their criticism of Thorndike's inferences from his experiments with animals.

In spite, however, of these criticisms there are many topics dealt with in the book, of which Koffka's treatment is profoundly suggestive. He gives a further emphasis to the importance in mental development and learning, of meaningful grouping and of the grasp of relations, the supreme significance of which has been so forcibly expounded by Spearman in his recent book on the *Principles of Cognition*, where what is of main value in the Gestalt psychology receives, as it seems to me, a much more fruitful and suggestive treatment.

What is surprising is that Koffka, while he shows such a close acquaintance on certain topics with some leading English psychologists (e.g., he explicitly follows Stout's treatment of instincts), seems to be unaware of the extent to which the older atomistic and associationist psychology has been abandoned. Koffka's statement of the law of association itself strikes no essentially new note. What living psychologist of any repute would maintain that mere coincidence of impressions without "unity and continuity of interest," to use Stout's phrase, would ensure their being henceforth associated together? Yet Koffka seems to think such a view is usually held.

To sum up, one gets the impression in reading the book of an extremely able, vigorous and independent mind which has rediscovered or readapted for itself ideas which others have already expounded. Koffka has, moreover, carried their application further, for he applies the explanation by configuration to instinctive actions and to imitation. If, in a future edition, some of the obscurities of exposition can be removed, the psychological and practical value of the book will be enhanced. Of the pedagogical importance of the main position for which Koffka contends, there can be little doubt.

C. W. VALENTINE.

## Book Reviews.

**Latin on the Direct Method** : by W. H. D. Rouse and R. B. Appleton. (University of London Press, Ltd. 1925. Pp. x. + 226. 7s. 6d.)

The Direct Method of teaching Latin appears to be suffering from the reaction which often follows the first approval of a new theory or practice. This result is quite as much due to adherents as to opponents. There have always been plenty of people who prefer to take the easier rather than the surer path, and to refuse to recognize the existence of difficulties rather than to attempt their solution. But it is a feature peculiar to the present time that teachers who share this common characteristic of humanity, instead of hiding it as a defect, proclaim it as a merit, and advertize themselves as the exponents of the most up-to-date educational theories. The authors of the Direct Method had no such illusions. They knew that they had to work far harder than their colleagues who taught on traditional lines; and their success has been very largely due to their recognition of the points at which lack of thoroughness might creep in and to the ingenuity of their devices for securing it. But lovers of the easy path, generally teachers with inadequate knowledge of the language, were the most eager to adopt the new method, often too in schools where the difficulty was that only two or three lessons a week were given to Latin, and the method has been judged, not by the success of its authors, but by the failure of unqualified dabblers.

The present volume sets out neither to reply to the strictures of the Prime Minister's Committee nor to censure incapable followers. It never mentions either. It simply sets forth the method as it is practised at the Perse. Nevertheless, we suspect that it is published as an *apologia* and as a declaration of the true faith as against heresies. It is an unfortunate tendency of our times to expect truth in a new book and to assume that one written ten years ago is out of date. Probably a new book was necessary to save the method, and we wish it success.

To some extent, too, it brings together in one volume matter which had previously to be sought in several. But, except in small details, there is nothing new; and we are glad of it. The experimental stage of the method in a broad sense was over when the pre-war expositions were written, and it would have been disconcerting if it had undergone changes which suggested distrust of its fundamental principles. Readers will, therefore, understand its scope best if we discuss its contents by reference to the previous publications of the Perse staff.

All the books explanatory of the method pre-suppose that the reader who intends to use it shall possess the text-books used in teaching by the method, which at present are Jones and Appleton's "Initium" (Cambridge Press), Appleton and Jones's "Pons Tironum" (Bell), Appleton's "Ludi Persici" (Clarendon Press), and Appleton and Jones's "Puer Romanus" (Clarendon Press). In 1913 Mr. Appleton published, under the title "Some Practical Suggestions on the Direct Method of Teaching Latin" (Heffer and Sons) an account of his work with classes in the second and third year of the course (this was before he wrote the "Initium"). In 1915 Mr. W. H. S. Jones published "Via Nova" (Cambridge Press), containing a general account of the method, with special chapters on all stages from the first lessons, which were described almost verbatim, to the sixth form. In 1916 Mr. Appleton, when he wrote the "Initium," also published a "Teacher's Companion to Initium"; thus we may say that the three volumes give us a description of the whole course, beginning with an exact report of the individual lessons and getting less detailed as the pupils proceed up the school.

The present volume is, in a sense, a codification. (1) Both "Some Practical Suggestions" and "Via Nova" were written before "Initium" and the "Companion" to it; and it is natural to re-write the account of the second and third years' work after the first year's work had taken its final shape. (2) It is more helpful for a teacher to read all that has to be said about each year's work on all sides—grammar, reading-books, composition, devices—before passing on to the next year's work, since the separate parts of the second story are not supported by separate parts of the first, but by the first in its entirety; and this chronological sequence was not fully observed, for instance, in the "Via Nova." (3) Mr. Appleton has some changes of detail to propose in the "Initium" (pp. 25-34); indeed, he is very frank in his criticism of the arrangement of his previous work on page 25. (4) The previous

volumes did not contain any account by Dr. Rouse of his work at the higher stages, which provide the material on which the classical expert is likely to base his judgment of the method as a whole. (5) The volume is able to reprint specimens of work from the pamphlet published by the Board of Education in 1910, which occupy 63 pages of the present book, and form an important part of it regarded as an apology.

Not much of the substance of the previous books has been omitted, save that the reader is still expected to possess the "Teacher's Companion to Initium." It might, perhaps, have been well in the section on pronunciation to refer to hidden quantities and double consonants. We are not quite sure that the section on what Mr. Appleton in "Some Practical Suggestions" called "litanies," is as compelling as in its previous form, and that the same does not apply to the account of picture-stories, which formed a favourite device of Mr. W. H. S. Jones. We have not noticed much said about the proverbs which figured largely in Mr. Appleton's previous book.

For teachers who are studying the method with a view to using it we believe it will be still of great advantage to read the new book and its predecessors at the same time.

The few omissions are compensated for by the few additions. The examples of boys' Latin jokes on pages 119-122 are particularly welcome. They show better than anything else in the book—and that is saying much—how thoroughly the Latin language has entered into the boys' being. They enable us to get a glimpse, too, of the personal relation of teacher and taught, which is rarely conveyed in a handbook of method, but often is of the very essence of a method. More is said about the songs than previously. The disuse to any considerable extent of précis at the earlier stages seems the only substantial modification.

We hope that this very human treatment will revive interest in the Direct Method as applied to classics, as we still feel convinced that in the success of that method lies the chief hope of retaining Greek and Latin as an important element in our educational system.

R.L.A.

**The Appreciation of Art :** by Eugen Neuhaus, Associate Professor of Art in the University of California. (Ginn and Co., Boston, New York, London, etc. Pp. 250. Illustrated.)

The advertising of a cure indicates the prevalence of a disease. Vasari was, perhaps, the first to explain the artist to his public, and ever since his time artist and public have been increasingly dependent on the critic in his office of mediator between them across the widening gulf. To-day, the task is, indeed, an onerous one, and the critic may well wring his hands, saying:—

"The times are out of joint, oh, cursed spite  
That ever I was born to set them right!"

Professor Neuhaus, however, shoulders his burden light-heartedly: he has no difficulty in telling us what art is: "For the convenience of the public and for philosophic purposes, 'art' has been defined in many ways, all in the last analysis expressing the same idea. Art is essentially a means of 'expression' designed to give æsthetic pleasure." We hope that the public will recognize the convenience of this definition, and that Croce and Aristotle will shake hands over this solution of their differences.

The book is full of controversial subjects about which conflicting views are presented with no attempt to offer a solution. The Professor is, perhaps, one of those conscientious teachers who fear personally to bias the minds of their students in favour of their own views; but the treatment is too superficial to give the careful student grounds for a self-formed opinion, while we fear the book is sufficiently informing to enable the new intellectuals, seeking to acquire social gifts, to talk plausibly of "Art." A bibliography is included, but only three references appear throughout the book, so that it will be difficult for a student to know where to seek for more light on any of the problems.

The usefulness of the book for the European student is lessened by the fact that most of the illustrations are from American Art Galleries, and the painters will be unknown to him. The possibility of access to the originals will, however, increase its practical value to the American student.

The most arresting chapter is that on "Symmetry and Balance," in which Professor Neuhaus subjects various pictures to geometric analysis. This, however, is surely a method only applicable to cases of approximate symmetry, and is unable to reveal the secrets of composition in such a picture as Rubens' "The Daughters of

Leucippus." In this picture the suggestion of opposing forces is entirely destroyed by the interlacing diagonals superimposed upon it: these are perfectly static in their suggestions, and seem rather to be disposed as the basis for a drop-repeat pattern than as the schema of this restive, turbulent scene. Is it not a more vital method of composition-analysis to discover and emphasize the skeleton lines of the picture itself, which, as if in a living body, do actually construct it? Lines such as the artist must first have drawn upon the canvas, much as a poet may feel the rhythm of a poem running in his head before the words are fully known.

Professor Neuhaus' definition of "rhythm" is almost too vague to be significant, and though it is true that artists are guilty of using the term in just such loose ways, it is surely the critic's place, while explaining them, to substitute exact terms for studio-jargon, dear to the heart though this may be. Are we really justified in speaking of the ratio of the decreasing size of objects in a perspective view as "rhythmic"? The pictorial value of such appearances can certainly be explained in other words, and so wide a use of the one term tends to blur its precision and detract from its function of supplying a thread upon which to string the various arts. If, as Professor Neuhaus implies, musician, choreographer, painter and architect hope to find in this quality a common denominator of their arts, the term must be so defined as to be applicable to them all with but the exchange of "space" in the formative arts for "time" in the aural arts, while in Dance, their common mother, we may see the marriage of space-time.

By analogy, we may push the matter further, but it is a course to be deprecated, since it brings into question the reality of the basic principle. A pattern may, indeed, have the properties of rhythm, explicit in the punctuation of space, implicit in its suggestion of time-intervals; or such spatial compositions as Blake's "Sons of the Morning Shouting for Joy," or the "Last Judgment" in the illustrations to Blair's "Grave," may be reduced to a pattern scheme for which "rhythmic" seems the only word. Mere symmetry, however, is not rhythm, but the balance of forces; and when we consider pictorial works in which the pattern element is weak, we must admit that prose has taken the place of poetry, and not "rhythm," but perhaps "cadence" is the only analogy we may permit ourselves to use.

Sometimes Professor Neuhaus speaks as if it would be enough for pictorial purposes if rhythmic movement were characteristic of the subject-matter, and sometimes as if the subjective movements read into a picture by the spectator in looking at, and following out, its composition were the essential. This is surely a confusion: for example, no one doubts that the sea is rhythmic in movement, but that is altogether a different question from whether a picture of the sea is rhythmic in design. The ripple-marks left upon the sand are, indeed, a kind of graph of the waves' motion, and their lines do possess true rhythmic suggestions which would be evident, we venture to think, quite apart from association; just as scientific graphs often make interesting and suggestive rhythmic patterns though their meaning may be unknown to us.

The book concludes with a chapter on "The Place of Art in Education," which gives an interesting account of the American system, and emphasizes the educational function of the Museum and Art Gallery.

D.M.L.

**Modernism in Language Teaching** : by H. E. Moore. (Cambridge: W. Heffer and Sons. 1925. Price 4s. 6d. net.)

Mr. Moore has made a real contribution to the pedagogics of modern language teaching. His second essay: "Translation of Words or of Experience," offers acute criticism of our current methods in the light of psychology. Chapter V supplies the teacher with valuable lists of literary material in French and German suitable for a school library, and his account of "Song," Chapter VII, with practical notes of his own work, is of first-class quality. One could wish, however, that Mr. Moore had been able to restrain his style. He anticipates his critics by apologizing for "transparent vices," but it is singular that a French scholar who ought to be saturated with a sense of form, should, "after re-writing his essays several times," still find them so imperfect. The defect is, no doubt, temperamental. Mr. Moore is obviously a very lively conversationalist: he writes as he talks and cannot help expanding as one idea suggests another. But I, for one, flatly refuse to believe that many of his pupils, men in the sixth form at Isleworth, have much traffic with Belfort Bax, Fagnet, G. H. Lewes, and Bertrand Russell. Yet when this froth of exuberance is blown off the substance of the liquor is sound, and one may hope that teachers will drink it in.

J.J.F.

**Principles of Literary Criticism** : by I. A. Richards. (Kegan Paul, Trench, Trübner and Co., Ltd. 1925. Pp. vi+290. 10s. 6d.)

This is essentially an approach to literary criticism from a psychological point of view, and the author has found himself compelled to include "as a preliminary what amounts to a concise treatise on psychology. For nearly all the topics of psychology are raised at one point or another by criticism, but raised from an angle which ordinary text-books do not contemplate."

The book is written with great clearness, and if, as Mr. Richards says, he has made no effort to follow those critics and theorists upon criticism who "currently assume that their first duty is to be moving, to excite in the mind emotions appropriate to their august subject-matter," no one can say that his pages are dull.

At the outset Mr. Richards opposes the view that the æsthetic experience is peculiar and specific, and certainly its specific nature does not seem to depend upon a unique element of experience.

The essence of the book seems to lie in the emphasis upon the study of values. There is a needed warning against the acceptance of values which are not ultimate values as adequate concepts in æsthetics.

As to values, the author lays down two principles: "Anything is valuable which will satisfy an appetency without involving the frustration of some equal or more important appetency"; "The importance of an impulse, it will be seen, can be defined for our purposes as the extent of the disturbance of other impulses in the individual's activities which the thwarting of the impulse involves." As to the latter, it is difficult to see how the importance of an impulse can be determined entirely by reference to other impulses.

It must not be supposed that the author is a hedonist, for he denies the identification of the satisfaction of an impulse with a pleasure. A weak point of the book seems to me to be the chapter entitled: "A Sketch for a Psychology." The reader will judge it from the following passages: "That the mind is the nervous system, or, rather, a part of its activity, has long been evident, although the prevalence among psychologists of persons with philosophic antecedents has delayed the recognition of the fact in an extraordinary fashion."

"The threefold division between the causes, character and consequences of a mental event, conscious or unconscious, corresponds, with certain qualifications, to the usual division in traditional psychology of thought (or cognition), feeling, and will (or conation). To be cognizant of anything, to know it, is to be influenced by it; to desire, to seek, to will anything is to act towards it. In between these two are the conscious accompaniments, if any, of the whole process. These last, the conscious characters of the mental event, include evidently both sensations and feelings."

Mr. Richards' experience of experimental psychology, judging from one or two references to that department of psychology, seems either to have been very limited or very unfortunate.

With the main principles which he has adopted the author proceeds to discuss many aspects of the æsthetic experience, such as rhythm and metre, the enjoyment of pictures, poetry and music; and in doing so he makes many acute and valuable observations. I doubt, however, whether his peculiar psychological views lend any greater value to this work.

C.W.V.

**A Book about Schools** : by A. R. Hope Moncrieff. (A. and C. Black. Pp. 312. 12s. 6d. net.)

Of necessity a history of education has to be packed very full of material, and it is rarely possible to read without meticulous attention lest some point of high importance be missed. "A Book about Schools" is not a history of education, nor does it attempt to deal with method and psychology, but it is what the scenery can be to a historical play—its setting. And it is a rich setting; it can be absorbed with ease; it is a book for an easy chair; it helps the reader to picture social conditions in whose midst important educational events took place, and this with the slightest reference to dates, though in other ways the periods stand clearly defined. The author has worked on a gamut from ancient schools to those of modern times, Church schools, Jesuit schools, private schools, girls' schools, with diversions among vagabond scholars, pages and infant prodigies. Thomas Slatter's strivings after knowledge are as amusing as the life of poor little Christian Heinecken is pathetic. Incidents culled from records in many languages, as the author tells us, are cited to give a very live picture of educational life in school and college in all ages. The result is a delightfully readable book.

A.P.B.

**Industry and Civilization** : by C. Delisle Burns. (G. Allen and Unwin, Ltd. Pp. 278. 10s. 6d. net.)

The author's aim is to give an analysis and criticism of the moral influences in economic relationships. The first chapter is concerned with the scope of the inquiry, and is followed by a critical account of the psychological assumptions made by many economists and a brief summary of modern psychology, its methods and data, showing how it has changed from what it was when the psychology assumed in current economics was popular. He adopts the view that the primary psychological fact is expression, the secondary being anticipation of possibilities, and the fundamental fact in the psychology of industry is not self-interest but a "sense of dependence from which groupings arise" based on the fact that each mind is correlative with many minds in groups.

The moral implications of this psychological analysis are the basis of his criticism of industrial organization in Chapter III, though the author is careful to note that the fundamental moral problem is the "opposition of moral interests between the demand for services and the demand for self-development in rendering service" (page 91).

The next four chapters deal respectively with Workers in Industry, Organizers, Owners of Capital, and Consumers. In these the psychological data available are summarized and the moral standards implied in current practice are discussed.

The last chapter examines the moral influence of Government in industry, and concludes with an exposition of the view that industrial life is itself a moral relationship which is not fully grasped by the members of the economic community though the economic relationship is being progressively moralized by new ideals.

Within the limits of a single volume it was, no doubt, impossible for the author to treat fully many of the topics mentioned or summarily outlined. We think, however, that there should be a fuller treatment of the view (which he adopts) that the criteria by which social life or any section of it is judged good or bad are (1) the satisfaction of natural impulses; (2) the realization of personal abilities and capacities; and (3) the intensity and the ease of contacts within a community. There does not appear to be any discussion of these, and in view of the possible opposition between them it would appear that the meaning attached to the third in particular should be made explicit, for surely contact is most intense when there is conflict and it may even be easier then than when there is almost complete agreement.

Incidentally, it is noted that the third criterion does not appear in the Index, which is also inadequate in other respects (*e.g.*, harmony, impulse, isolation of organizers, intercourse, do not appear in it).

The book, however, marks an advance in ethical reflection, and the author is to be congratulated on having broken new ground in this essay, which contains much that should be valuable to those who are concerned with industrial problems. Those whose aim is to aid the adolescent to develop a clearer consciousness of the moral aspects of industry will welcome this addition to their libraries. A.E.C.

**The Origin of Man** : by Carveth Read, M.A. Second edition, revised and enlarged. (Cambridge University Press. Pp. ix+100. 5s. net.)

This book, in its present form, is an extension of the first part of Professor Read's earlier work, "The Origin of Man and His Superstitions." It was felt that the larger book fell naturally into two divisions, of special interest to different groups of readers. Even those who value both sections will be glad to have this greatly expanded discussion of the author's important contribution to the fascinating topics of man's physical and mental evolution. The central idea is still man's differentiation from other related species by his adoption of the life of the hunter, and for this view the author makes a very strong case. The treatment of the psychology of the hunting-pack is both interesting and acute, but many other important topics are illuminated by Professor Read's treatment of them. Of special interest to many FORUM readers will be those sections dealing with the beginnings of and later growth of language, the development of intelligence, and the dawn of "morality." Few scholars have that combination of the true scientist's appreciation of the value of solid fact and capacity for fruitful hypothesis, the philosopher's breadth and the psychological insight and acumen necessary for the best treatment of this subject; Professor Carveth Read reveals them all, and in addition the book is written in a style which makes it a delight to read. C.W.V.

**The Psychology of Religion** : by W. B. Selbie, M.A., D.D. (Oxford : Clarendon Press. Pp. xii + 310. 12s. 6d.)

This volume is issued as the first of a series of "Oxford Handbooks of Theology," under the general editorship of the Bishop of Gloucester, which is intended for the use of theological students and of others who are anxious "for wise and sober instruction on questions of religion and theology." This declared intention must be borne in mind or this work will be judged by wrong standards. It is not advanced enough for any student who has gone deeply into the subject, and it is not popular enough for the victims of newspaper journalism. It must be accepted as a preliminary and rather discursive survey of the country. It ambles pleasantly and chattily over vast fields in a reassuring way, and brings before the first-year student the statements and opinions of men who have taken the subject in hand with intellectual seriousness. Often it reveals the personal charm and shrewd humour of the author, as when he writes of children : "Anything solemn, orderly, and formal appeals to them irresistibly. . . . Witness the small girl who rebuked her smaller brother for not 'smelling his hat' when he went into church" (p. 170). She had, doubtless, noticed how prosperous worshippers said their first private prayers in a crouching attitude to their silk hats.

The best service which Dr. Selbie has rendered his readers is to spill the contents of his note-books for less furnished minds, and to offer connecting judicious comments to his anthology of quotations. Nothing perturbs him ; he is not in the least degree alarmed by the most eccentric and extreme theories. When he is in the presence of something really dangerous and critical, he talks blandly like a family doctor with an excellent bedside manner and allays all panic. If anything further is necessary he is a modest general practitioner, and refers the patient to an accredited specialist.

The volume makes no pretence to come to grips with the radical problems. It enters into no competition with Dr. J. B. Pratt's far abler work on "The Religious Consciousness" (which it quotes), but it will serve as a happy preparation for that courageous treatise.

Dr. Selbie's style is conversational to a degree hardly permissible, one would have thought, in an Oxford handbook published by the Clarendon Press. He does not always verify his references or even correct his proofs. He permits himself to pass a sentence like this : "The idea is popularly expressed in the worlds [sic] 'on earth the broken arc, in heaven the perfect round'" (p. 276). The idea may popularly be so expressed, but it was better expressed by Browning.

J.M.L.T.

**Howson of Holt** : by J. H. Simpson. (London : Sidgwick and Jackson. Pp. 94. 3s. 6d. net.)

The head master of "Gresham" had been fourteen years at Uppingham, but his fine work as a school master was due, one gathers, neither to Oxford nor to Uppingham, but to his earliest years as the son and grandson of school masters. Mr. Simpson does not trace this connection ; it seems pretty obvious, however, when one considers the distinctive gospel that he preached. He believed profoundly that boys could be helped to be honourable and clean-minded if he and his staff took a personal interest in them and gave them a strong lead. He denied the whole cult of athleticism and public school "swagger," of which "The Loom of Youth" gives a notorious example. On this basis, with shrewd north-country common-sense and intense sympathy for colleagues and boys, he made a good school, and his memory is worth keeping in mind. Mr. Simpson does not disguise his intellectual limits, but these need not be recapitulated. The value of the book to students of higher education in England is as a foil to the discouraging impression of what public school masters have been doing during the last quarter of a century. Mr. Simpson gives a careful account of the distinctive measures that Howson took to save his boys from those sexual temptations which appear to be the plague spot of boarding schools. He had, apparently, no acquaintance with "The New Psychology," and acted simply on his empirical experience of the kind of help needed by boys from their adult friend, the school master, and from the general tone of a society which recognizes the power of evil and agrees to thwart it. In this, as in many other respects, Greshams offers interesting comparison with Oundle, with Sanderson, also "a science man," no less determined to cut loose from the public school conventions of his day.

J.J.F.

**The Field of Psychology** : by Madison Bentley, Ph.D. (Appleton and Co. Pp. 545. \$3.50.)

The sub-title, "A Survey of Experience: Individual, Social and Genetic," gives a better idea of the scope of this book than does its title.

It attempts what the author calls the difficult—almost hopeless—task of union and of integration. Psychology, he considers, is further from its moorings than it was at the end of the century, and the present-day psychologists grasping here and there for a support, or for a principle of unification, fails to find it, unless he is satisfied with a partial view.

The entire treatment rests on the conception of the total living creature at once bodily and mental.

After an introduction dealing with the approach to and attitudes towards psychology, and the sub-divisions of psychology the author proceeds to deal with "The Composition of Experience and the Methods and Products of Analysis." This is followed by Part II on "The Organization of Experience," and Part III on "The Psychosomatic Functions"—e.g., perception, memory, thinking.

The final part discusses "The Socialization and Development of the Psychological Organism."

This is hardly a book for beginners, unless they are prepared for hard work and much thought and reading, but to a serious student who will use the numerous references given, it should prove invaluable. It discusses pitfalls and difficulties in psychological observation, ambiguous terms, etc., and considers critically theories concerning the different topics. At times vagueness and indecision are apparent, but in many cases this is the only attitude that could legitimately be adopted.

The illustrations are an attractive feature. The thorough and up-to-date nature of the work is, perhaps, best indicated by the fact that the numerous book references include some of the most important publications of the last few years.

F.M.R.

**Child Lore: A Study in Folk Lore and Psychology** : by Mrs. S. Herbert. (Methuen and Co., Ltd. Pp. viii+207. 6s.)

In this work Mrs. Herbert does not profess to establish any new psychological opinions; she is successful in her attempt to give a simple review of progress in the "science of childhood" from the earliest times to the present day. Illustrations are given from tribes primitive and civilized, of their preparation for the coming of the child, and of their physical care of it in the first few years of its life. The author finds much of superstition and ancient custom still clinging to this part of human life. She suggests, for example, that the children's game, "London Bridge is falling down," which ends in giving someone away, may be based upon the ancient custom of the walling in of a living child in a new building or bridge.

Chapters IV to X deal mainly with the psychology of child behaviour. Most of the recent findings of psychologists with regard to the behaviour of children are described, including those of the psycho-analysts, and are well illustrated by Mrs. Herbert's observations of her own children. The book should be very interesting to those parents who are without a special knowledge of psychology, and should help them to a better understanding of their children.

M.E.M.

**The Thread of Ariadne** : by Adrian Stokes, with an Introduction by John Middleton Murry. (Kegan Paul. Pp. 257. 6s. net.)

We are all aware at times of the paradox of personal life—if everything is caused by a whole series of past events how can I be a person and endeavour to determine what is to be? Some of us try to find a solution; others dismiss the problem with a shrug. To the latter class Mr. Stokes' book will not appeal, but to the former class we believe that the book will be doubly welcome; first, because it is a personal record of a movement of thought, and secondly because it contains hints of a solution.

The movement of thought is more widely prevalent than Mr. Stokes appears to think is the case; a realization of this would have led him to express his claims more moderately. He has not "destroyed systematic philosophy"; no one can. He has done better; he has absorbed much of the essence of Kant, Hegel, Bradley, and is struggling forward.

Some will follow his struggles eagerly and will wish that the record were more detailed, for, apart from the value of his conclusions, the psychological interest in the development of an original thinker demands much material of the kind which this book gives.

A.E.C.

**A History of the Perse School, Cambridge :** by J. M. Gray. (Cambridge : Bowes and Bowes. 1921. Pp. viii. + 161. 5s.)

The general history of grammar school education is largely built up out of such histories of individual schools as this volume. The history of the Perse was very similar to that of other foundations of the same period—the early years of the seventeenth century. We have the familiar story of a founder's will which caused difficulties by not anticipating future contingencies, vicissitudes of good and bad fortune according to the chances of interest or neglect by the governing body and the idiosyncrasies of masters and ushers, and the inevitable decline in the eighteenth century with diversion of funds and a final closing down. Then we see public opinion arising, an appeal to the Court of Chancery, and a quickening of the conscience of the governing body—a story which serves to remind us that the educational legislation of the nineteenth century was the climax of a movement of opinion, not self-generated State action. Indeed, the entrance of the modern spirit in 1864 with a new head master slightly anticipates the reformed constitution under the Endowed Schools Commission.

Little information seems to have survived as to the curriculum of earlier days, as we take it that the account on pp. 30-31 is based on the general practice in grammar schools of the period ; but the account of the attempt which was made during the Commonwealth period by Dell to force non-classical Latin on the lines of the Puritan Innovators into the school is an interesting sidelight on that curious movement of the middle years of the century. We have, however, an account by a contemporary of the curriculum between 1834 and 1840 ; and it is curious to note that the Perse, which, to-day, suggests to everyone who hears the name the reformed teaching of classics, was, till 1864, deficient in its classical teaching, and was almost alone among schools which sent boys to the University in specializing in mathematics. It is not so much surprising, however, that the position of mathematics in the University of Cambridge should have had this effect on the local school as that it should have produced as little effect as it did in the country generally.

The book is a well-proportioned and readable school history, and leaves a clear impression of the school at each of the periods in its chequered career. R.L.A.

**Birkbeck College Centenary Lectures.** (University of London Press. Pp. xiii + 178. 5s. net.)

A collection of essays reproducing lectures given by Lord Haldane, Sir William Ashley, Sir Joseph Thomson, Sir Michael Sadler, Dr. Gooch, Professor W. Bateson, and the Right Hon. Stanley Baldwin, in connection with the Centenary of the Birkbeck Institute. Mr. Ramsay MacDonald has contributed a Preface.

It was a happy event that the "Orations" delivered on the occasion should, in the main, deal with the progress in fields represented by each speaker during the period in which the Institute was making its own way to the unique position it now holds in the University of London. The lecturers surveyed philosophy, economics, physical science, education, historical studies and biology, and Mr. Baldwin's address is an interesting reminder of the kind of place London was when the Institute was initiated, and of the intellectual promise of those days ; it is a stimulating appeal setting its seal on the contributions of the other speakers. The addresses, besides being scholarly reviews of outstanding work, have an essentially human touch, and by the very form in which they are here presented to the public as the contributions of workers in what would appear to be different fields they demonstrate in a way such as could hardly be improved upon the unity of knowledge and the dependence of one researcher on what is achieved by another.

The book is presumably a companion volume to Mr. Delisle Burns' "Short History of Birkbeck College," reviewed recently in this journal. Both compilations are well worth reading. A.P.B.

**Diagnostic Testing and Remedial Teaching :** by E. M. Paulu, Associate Professor of Education, Aberdeen, South Dakota, with Introduction by Lotus D. Coffman, President of the University of Minnesota. (London and New York : D. C. Heath and Co., 1924. Pp. xviii + 371. 7s. 6d. net.)

The chapters in this book are based on a brief course in mental and educational measurements, and are intended to acquaint teachers and prospective teachers with the scales and tests that can be applied in the ordinary classroom. The writer, however, is not content simply to describe the methods and to formulate the results. He emphasizes the importance of following up all testing by an attempt to diagnose

the causes of the defects found, and to adapt the teaching methods to the nature of the cause deduced. The book is not addressed to the psychological expert. Both the language and the presentation of material are extremely simple, and designed to appeal to the American "rural and grade teacher."

The first five chapters deal with the general principles of educational testing, with the uses of educational surveys, and with the simpler statistical computations employed in educational psychology. The remaining chapters deal with what is called "diagnosis" in reading, writing, and spelling, in composition and arithmetic; in history and geography, and in the more important high school subjects. Each chapter not only states the problem clearly, and discusses the chief methods of measurement employed, but also summarizes (perhaps a little crudely) the remedial measures recommended for each individual case, and concludes with a series of simple exercises and a list of references for further reading. An appendix contains a list of tests and scales discussed in the volume.

The book succeeds in being simple and clear; but suffers inevitably from the attempted simplification. It is, however, a useful little volume to recommend to those teachers who find the ordinary works on educational measurement too technical and too abstruse.

C. B.

**Workers' Education in England and the United States:** by Margaret T. Hogden. (Kegan Paul. Pp. xi+312. 12s. 6d. net.)

A historical account of phases in the development of workers' education in England and the States, with comparisons between the achievements in the two countries. From time to time different ideals have lain behind what has been attempted. The author has shown that class interest has been responsible to a considerable extent for propaganda and some prominent educational heroes are brought under the suspicion that what they advocated for the people was not entirely disinterested. The education most acceptable to the workers is, naturally, likely to be that which they themselves administer; but the impression given by this book is that there is neither existing nor potential stability in the policies directing such administration, and that the realization of an ideal in which common humanity carries full weight is yet far off.

While charges have been brought against gentry, manufacturers, Church and politicians, in their successive efforts to indoctrinate the people, it is conceivable that the workers themselves are not entirely without blame; there must be changes due to opportunism so long as conflict rages between different classes and success in workers' education appears to depend upon "whether the working-class chooses to secure wealth or responsibility, material goods or spiritual maturity."

"Workers' Education" is encyclopædic. There are places where the fullness of its information obscures its lucidity and makes reading a little difficult; an index would do something to remedy this defect. There are ample references by footnotes to standard works bearing upon the education of the adult and a valuable bibliography occupies thirty pages at the end of the volume. It is a useful book for the student of comparative education, more particularly because it outlines various movements in the States and fills up the gaps between 1848 and 1904 often left open in the history of adult education in England.

A.P.B.

**The Changing School:** by Philip Boswood Ballard. (Hodder and Stoughton. 1925. Pp. xi+331. Price 6s. net.)

This is a most readable book and a stimulating one, whether it be for the teacher or the student in training. Even the most experienced educationist may well find it clarifying, too, for Dr. Ballard has a remarkable gift for presenting old topics in a lucid way from a new angle, and for putting forward a reasonable argument for a via media between two opposing schools—see, for example, his chapter on Formal Training. Dr. Ballard's happy touch of humour enlivens many a topic and some of the chapters make delightful armchair reading. There are few topics of importance in educational theory and practice on which this book does not touch. There are chapters on Punishment, Freedom, the Personality of the Teacher, Imagination, Individual Work, From Latin to English, the Passing of the Object Lesson; and several relating to infant work.

The value I set on the book must not be measured by the length of this review, for Dr. Ballard is so reasonable that there is little room for criticism; he is so clear that there is rarely need for further exposition. If one had to fill a longer space one would simply feel inclined to give many quotations from what is undoubtedly a most welcome book.

C.W.V.

## BOOK REVIEWS

**Collected Papers, Vol. I:** by Sigmund Freud, M.D., LL.D. Authorized translation under the supervision of Joan Riviere. (The International Psycho-Analytical Press. Pp. 360. 21s. net.)

This book is the seventh volume of the International Psycho-Analytical Library, edited by Dr. Ernest Jones. As the editor rightly points out, the only thorough way of understanding the psycho-analytic movement is to study the original papers of Freud, especially those recording clinical investigations, on which his views were based. The papers given here are the early papers dating from 1893 to 1905. They reveal the search for and gradual development of those ideas which eventually became the foundation of the Freudian psychology. For this reason, this volume, with its successors, will undoubtedly become the chief reference book of the psycho-analytic school. I presume that an index will appear at the end of the four volumes which are to constitute the series of Freud's papers.

The last sixty pages of the book are given to a paper on "The History of the Psycho-Analytic Movement," published in 1914. This is of the greatest interest. It is amazingly outspoken, especially in its bitter personal attacks on Adler and Jung. Both are accused of unbounded egoism and some of the main conceptions of each are subjected to a brief critical discussion, their divergence from the original psycho-analytic doctrines being pointed out. As Freud himself anticipated, this paper has no doubt given opportunity for many critics to scoff and this translation will increase the number. It certainly makes painful reading. But again it is an essential part of the history of the whole psycho-analytic movement; and we can assure the reader that it is never dull.

**Procedure in High School Teaching:** by D. Waples, Ph.D. (Macmillan and Co., Ltd. Pp. 346.)

In this volume of the American Teachers' College Series the author has attempted to present typical schoolroom problems in such a way that students in trying to solve them are, at the same time, learning the general methods and principles of teaching. Reference to standard books on these principles are made in copious bibliographies at the end of each chapter.

The author has dealt in this manner with such varied topics as: Studying the Pupil, Motives, Discipline, Oral Questions, Supervised Study, Planning Lessons, Selection of Subject Matter, Types of Lessons, Transfer of Training, Reflective Thinking, Drill, Testing and Revisions.

Many of the chapters are thought-provoking, but parts become wearisome through over-elaboration. Students can gain much from discussions with their tutors after reading the appropriate chapters but, unless there is adequate discussion, there is a danger that students may over-emphasize the relatively unimportant. Beginners will certainly realize that it is wise to be ready to note the smallest details if they intend to help their pupils to make the most of their abilities. Whether they will realize the importance of co-ordinating their observations and interpretations into a wise scheme is another matter.

**The Project Method in Classroom Work:** by A. E. Hotchkiss. (Ginn and Co., Ltd. Pp. 258. 6s. 6d. net.)

A brief discussion of the fundamental principles underlying this method of teaching followed by a detailed account of projects as worked out in classrooms. It is desirable that students in training should realize that success or failure in teaching depends upon the extent to which their pupils enter into the activities of the classroom. This book will serve to show how teachers have attempted to secure this activity.

**How to Teach Reading:** by M. G. Pennell and A. G. Cusack. (G. Harrap and Co., Ltd., Pp. 298. 6s. net.)

In the main, this is a collection of "practical suggestions" which have been used in various American primary schools.

**The Life and Letters of Sir Henry Jones** : by H. J. W. Hetherington. (Hodder and Stoughton. Pp. 309. 12s. 6d. net.)

Professor Hetherington has given us a vivid portrait of one whom the reader must feel was a truly great man. The story of Henry Jones' strenuous boyhood, of his beginning to help his father in his shoemaking at the age of twelve and a half, of his constant efforts after further self-education, his rising at 4 a.m. to work till breakfast-time in preparation for the entrance examination to the Bangor Normal College, his work as a preacher, and his entry and brilliant success relatively late in life at Glasgow University, all this reads like a romance and may well serve as an inspiration and ideal to many students of to-day who work under happier conditions.

One thing of special significance to educationists is the fact that Henry Jones, with all his activity of mind, was content with his work as a shoemaker and only the constant urging of a neighbour stimulated him to pursue a further education.

A well-balanced account is given of Sir Henry's work as a teacher and pioneer in educational matters and a lucid chapter discusses his contribution to philosophical thought. There are moving accounts of the closing scenes of his life, when, struggling against recurrent cancer and bereaved of dearly-loved children, he showed so much nobility of soul and such doggedness in the carrying out of duties. Many of the letters—to prominent contemporaries or to members of his family—are of rare interest. If the chief aim of biography is to give one an insight into the deepest thoughts and feelings of a noble mind and to inspire others to high effort, this is a great biography.

C.W.V.

**A History of Gaelic Ireland from the Earliest Times to 1608** : by P. W. Joyce, LL.D., T.C.D., M.R.I.A. (Longmans, Green and Co. 1924. Pp. vii + 565. 5s. net.)

In this, the last published work of the late Mr. Joyce, the eminent Irish academician from whose pen have come so many valuable contributions to the social and political history of his country, the author aimed—and with success—at giving a concise but within the limits of brevity, a clear and comprehensive account of Irish history, from the earliest times down to the period when Ireland ceased to be governed by native institutions.

A valuable feature of the book is the series of chapters in Part I, in which is given, in outline, a clear and trustworthy account of the institutions, laws, literature, and customs of the ancient Irish, and including an interesting exposition of the Brehon Laws. Every chapter in this section is headed by a useful list of the most authoritative sources for the matter under discussion. In the three following parts, the author deals in turn with Ireland under Native Rulers; the Period of the Invasion; and the Period of Insurrection, Confiscation, and Plantation.

Everywhere life and interest are given to the narrative by the plan which the author sensibly adopted of weaving the history round outstanding events and personages; and every chapter forms, therefore, almost a complete narrative in itself. Throughout the book it is obvious that the author has been careful to rely on first-hand evidence only; and where two authorities of weight differ on any point of importance, both opinions are impartially recorded.

The publishers have done their work well. The book is handsomely turned out, and contains an admirable reproduction of a map of modern Ireland printed in Modern Irish. The book should undoubtedly form a useful introductory volume to a more detailed study of Irish history from the beginning, and would be an eminently valuable addition to school libraries.

R.J.C.

**Tragedy** : by W. Macneile Dixon. (Arnold and Co. Pp. viii + 228. 6s.)

Professor Macneile Dixon has written a cultivated and interesting book. Without any irksome sense of academic exposition we are made acquainted with the best that has been thought about tragedy and with much ripe wisdom of the author's own. Perhaps the special merits of the book are that it gives an admirable description of the spirit of Greek tragedy which would be most helpful to the reader of Shakespeare who has no Greek, and that it is a delightful and stimulating guide through more obscure regions where literature touches life on the one hand and philosophy on the other.

The most advanced student and teacher will find this book suggestive, and it is not too difficult to be read with interest and profit by boys and girls in the higher literature classes in our schools.

E. DE S.

**The Elements of Mechanics :** by F. S. Carey and J. Proudman. (Longmans' Modern Mathematical Series. Messrs. Longmans, Green and Co. 1925. Price 8s. 6d.)

The authors were very successful in their endeavour to present the whole subject-matter in a strictly logical order, introducing new concepts only when further progress became impossible. As a result in places the treatment had to be rather formal. Another rule which the authors tried to adhere to throughout is that of proceeding from the concrete to the abstract and from that which is more familiar to that which is less so.

A very interesting and commendable feature of the book is a chapter devoted to the history of the science of mechanics. One cannot help thinking that this side of the subject, as well as of most other subjects taught in our schools and colleges, has been sadly neglected.

The book is devised to cover advanced courses in schools and first-year courses at the University. It could not be used by students who have not before done any mechanics. Considerable knowledge of mathematics, exclusive of the calculus, is freely assumed. Drawings and worked examples on the subject of every chapter are very helpful.

L.M.T.

**Typewriting :** by W. G. Brittain. (Longmans, Green and Co. Pp. viii+178. 3s. 6d.)

This manual of typewriting, written by one who is both an examiner and instructor in the subject, is of a most practical character. One feels that the conscientious student who uses it, in addition to a knowledge of the art of typewriting, will have gained some insight into general business routine when the final page is reached. The exercises are extremely varied and a very useful index of business abbreviations is included.

M.A.H.

**Intermediate English Extracts and Exercises :** by F. H. Pritchard. (Harrap. Pp. 269. 2s. 6d.)

This is a suggestive little volume intended to meet the requirements of pupils preparing for the School Certificate Examination. Well-chosen extracts, ranging over the whole field of modern English literature, form the nuclei of thought-provoking exercises on composition and style, and a starting point for wider reading on the various topics illustrated. Appended are a useful set of general exercises, extracts for précis and suggested books for the class library. The English teacher will welcome this companion to "English Extracts and Exercises."

M.E.M.

**The Relations of Geography and History :** by H. B. George. Fifth edition, edited by O. J. R. Howarth, with an additional chapter by C. B. Fawcett. (Oxford : Clarendon Press. 5s. net.)

The late Mr. H. B. George's book, which first appeared in 1901, is justly regarded as a classic in the field of historical geography, and in this edition some attempt has been made to bring the work "up to date." The advisability of such a revision in the case of a pioneer work is questionable, and the difficulties are great. The last dozen years have seen marked developments in the study of the evolutionary aspects of human geography, and there is now a growing, although scattered, literature dealing with various parts of the Continent and Britain (especially, but not merely, in the prehistoric periods). If the student should look in vain for the indications of such progress in this book, he must recognize that only by completely recasting the volume could such a revision have been accomplished. In this new edition, indeed, the opinions and statements of the original work have been carefully conserved. The work of extending the section in America and of adding a new chapter on recent changes in Europe has been well accomplished by Dr. Fawcett, but one wonders whether it would not have been better to have reprinted the work as it stood. What is particularly desirable is that the re-appearance of this book should prove a stimulus to the writing of new ones more in harmony with the present outlook on the subject and making more accessible the fresh material now available.

R.H.K.

## BOOK REVIEWS

**A Brief History of Civilization** : by J. S. Hoyland, M.A. (Oxford University Press. Pp. 288. 3s. 6d. net. Best edition, 7s. 6d.)

The author was a member of a Committee for the Revision of the Curriculum in Secondary Schools, and has attempted to meet the need expressed for the inclusion in the school course of a brief history of civilization.

He has succeeded in producing a book which, we believe, will be read with interest by pupils in the upper forms of secondary schools and by many of the students of Workers' Educational Association classes and similar organizations.

About half the book is devoted to the period before the Middle Ages under the headings : The Beginnings of History ; The Meaning of Civilization ; India and China ; Christianity and Islam ; Greece ; Rome. In these chapters the author emphasizes the spiritual nature of civilization without losing sight of the importance of material civilization for human development.

The remaining chapters on The Middle Ages, Nationalism, Internationalism, and The Return of Greece, give a clear account of one of the great problems of modern history, "the control of anarchic and aggressive nationalism," but do not appear to suggest to the reader that there is another which may prove to be equally important for civilization, namely, that of controlling anarchic and aggressive international finance and industrial competition, but it is perhaps unreasonable to expect pupils in secondary schools to realize the importance of such a problem.

The illustrations are excellent and should aid the reader in realizing the development of civilization.

The book can be recommended as meeting the needs not only of secondary schools but also those of training colleges whose students require a brief survey of history in order to supplement intensive study or to obtain a more fundamental point of view from which to view the teaching of history in schools.

**A Human Geography of Cambridgeshire** : by John Jones. (Sidgwick and Jackson, Ltd. Pp. 88. 4s.)

All keen teachers of geography who are anxious to make the study of the home region a vital part of the school course—as they are more and more urged to do—will find this book a stimulating guide. The author is a practical teacher who really knows the problems of the school and who also knows something of the pitfalls of teachers who try to make geography "scientific" by treating in not too scientific a manner the elements of the sciences on which their subject is based. If the study is to be scientific it must be in the methods by which various kinds of geographical data are handled and interpreted, and it is in the analysis of such methods that the book is so valuable. Clearly in such a volume any free treatment of the human geography cannot be looked for, but the real merit of the work lies in showing what is practicable in schools in working out, step by step, the nature of the inter-action between man and his physical environment in the local area. One would wish that more studies of the same kind existed out of which real regional monographs of England could be built up on the scale of the famous French studies.

Of the nine chapters, the three dealing with the various types of villages and parishes within the area covered call for particular praise ; but they have to be studied to be really appreciated.

The book is attractively produced and is excellently illustrated with sketch-maps and diagrams.

**The Study of Living Things** : by E. S. Russell. (Methuen and Co. Pp. xx + 129.)

The object of this book is "to outline a method of attack on biological problems which is neither hampered by the rigid preconceptions of the materialistic method nor burdened with the philosophical difficulties inherent in vitalism." The method is called "The Psychobiological or Functional Method," and it is claimed that the attitude is as strictly objective as the materialistic. The only theoretical assumption implied is that the living thing is to be regarded as an active and enduring individual.

Except in the study of behaviour, where definitely psychological concepts are indispensable, psychobiology comes in practice to mean functional biology.

The volume is intended as an introductory essay preliminary to further more practical contributions.

**Youth and Maidenhood : a Book of English Verse.** Chosen by L. S. Wood.  
(J. M. Dent and Sons, Ltd. Pp. xxxi+320. 7/6.)

An exhaustive collection of verse which has for its theme boys and girls between the ages of twelve and twenty. The arrangement is chronological, and it is noteworthy that the more modern section of the book is much the more attractive ; this is probably largely because we moderns understand and sympathize with youth much more, but it is due also to the method of selection. The later extracts are almost always complete in themselves, while the earlier ones are very often a few lines torn arbitrarily from some play or poem and, out of their context, neither beautiful nor valuable. Moreover, the compiler has not always been sufficiently strict about the quality of his selections ; they will always interest but only sometimes delight the reader

**Concerning the Nature of Things :** by Sir William Bragg, K.B.E., D.Sc., F.R.S.  
(Bell and Sons. 7s. 6d. Pp. 232.)

This book consists of six lectures delivered at the Royal Institution in 1923-24. It deals especially with recent developments in physics, in a popular or semi-popular way. Sir William Bragg's powers of lucid exposition and of homely but apt illustration are well known and in this book they are shown everywhere. The natures of atoms, gases and liquids are all revealed under the spell of his wizardry. Crystals (diamonds, snow and metals) have the remaining three chapters devoted to them, with many excellent illustrations and illuminating diagrams.

**The Way of Literature :** edited by Professor E. de Selincourt, M.A., D.Litt.  
Selected by Miss A. E. Woodall, Miss E. M. Jebb, M.A., Miss Freda M. Buchanan,  
M.A., Miss Helen Darbshire, M.A., and the Editor. In six volumes. (Collins.)

This is an excellent collection of pieces, both prose and poetry, for reading in school or out, graded according to the age of the pupils. The printing and illustration of the books are also everything that can be desired and the general editor contributes a series of introductions that are most readable and full of good sense, with occasional lapses into the familiar fallacies of the Faculty psychology.

**A Treasury of Caroline Lyrics :** Selected by Amy Cruse. (George G. Harrap and Co. Pp. 142. 1/9.)

An excellent and most representative selection preceded by a clear, scholarly introduction in which the Caroline lyrists are differentiated from the Elizabethan ; much stress is laid upon the historical importance of the work of Jonson and Donne.

**William Morris and his Poetry :** by B. Ifor Evans, M.A. (George G. Harrap and Co. Pp. 156. 1/6.)

This book will undoubtedly stimulate the reader to explore the works of William Morris for himself. It is written in simple, straightforward English, well fitted to present, without obtrusion, those of the poems which are quoted ; as we read, we pass unconsciously into the dream world of this "idle singer of an empty day."

**Ballads : A Selection :** edited by F. Sidgwick. (Sidgwick and Jackson, Ltd. Pp. 304+xlvi. Cloth, 3s. 6d. Paper, 2s. 6d.)

This scholarly selection of fifty ballads, from the four-volume selection by the same editor, should prove valuable to those teachers of English who wish to refer their pupils to a selection which is cheap, representative, and, as far as possible, authoritative.

**Voyages of Sir Francis Drake and Sir Humphrey Gilbert:** by Richard Hakluyt, with Introduction, Notes and Glossary by T. H. Allen. Pp. 148. 1s. 9d.

**Anson's Voyage Round the World :** abridged with Notes for School Use by John C. Allen. Pp. viii+163. 1s. 9d.

**Heroes of French History** : by Louise Creighton. Pp. 152. 2s. 6d.

**Kenilworth** (abridged), with Introduction and Notes by David Salmon. Pp. 160. 1s. 9d.

**The Stevenson Reader** : edited by Lloyd Osbourne. Pp. 261. 2s. 6d.

**The Book of the Happy Warrior** : by Henry Newbolt (abridged). Pp. ix + 143. 2s. 6d.

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## AN ELEMENTARY SCHOOL SYLLABUS IN MATHEMATICS.

By T. PERCY NUNN, M.A., D.Sc.

(Professor of Education in the University of London.)

Reprinted from "The Forum of Education," Nov. 1924 and Feb., 1925).

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# The Training College Bulletin

*Edited on behalf of the  
TRAINING COLLEGE ASSOCIATION  
by  
Lt.-Col. W. J. DOUGLAS,  
Saltley College, Birmingham.*

No. 8

JUNE, 1925

## TEACHERS REGISTRATION COUNCIL.

The most important work of the Council since January has been the formulation of the following resolutions :—

(1) That the Teachers Registration Council be supported in seeking to obtain such powers as may be necessary to frame and enforce regulations regarding the professional conduct of teachers and the procedure to be followed in regard to teachers who are held by the Council, after due enquiry, to have conducted themselves in a manner which calls for disciplinary action in the form of censure or of removal, temporary or permanent, from the List of Registered Teachers, the List of Provisionally Registered Teachers, or the List of Associate Teachers.

(2) That the Teachers Registration Council be supported in seeking to obtain the power to refuse recognition for registration purposes to examinations proposed to be taken by teachers at any stage of preparation for teaching work, and that examinations which are not recognized by the Council shall not be recognized by the State as qualifying for service in State schools, provided that in considering the question of the recognition of examinations the Council shall have the help of five duly appointed representatives of the Board of Education, all of whom shall be registered teachers of experience.

(3) On and after 1st January, 1930, no teacher should be appointed on the staff of a State or rate-aided school who is not fully registered or in association with the Teachers Regis-

tration Council by reason of admission to the List of Provisionally Registered Teachers or the List of Associate Teachers. Prior to the date above-mentioned teachers who are eligible for full registration should be required to become registered before being promoted to headships or positions of responsibility in State or rate-aided schools.

(4) Up to 31st December, 1929, the Teachers Registration Council should maintain transitional and modified conditions of registration which permit of the admission to full registration of all teachers who produce satisfactory evidence of experience and attainments (including recognition by the Board of Education as certificated teachers in public elementary schools), subject to any requirement as to training in teaching which the Council may impose in individual cases.

These resolutions are now being considered by the separate associations represented upon the Council, and replies are being received. The T.C.A. Council has expressed general approval.

May I remind members of the Association, especially principals and heads of departments, that all students qualifying this summer should be enrolled as associate members of the register before they go down? The payment for associate membership is only 5/-. Forms of application and all information may be obtained from the Secretary, The Teachers Registration Council, 47, Bedford Square, W.C.1.

WINIFRED MERCIER, *Representative.*

## DIPLOMA COURSE IN BIOLOGY.

The report of the Joint Committee of the Science Section of the Training College Association and of the Zoological Section of the British Association is now complete and will shortly be placed before the Universities. In this connection a motion supporting the report and urging the importance of general biology in the educational system of the country was passed by the Zoological Section of the British Association, and has been sent to the Universities, the Council of the Training College Association and the Board of Education.

The syllabus, which is meant to indicate the standard of course desired, has now been finally revised by Professor Laurie, after being submitted to the University Zoological Departments for suggestion and comment, and the possibility of an alternative syllabus on a botanical basis is under consideration.

The committee is much indebted to Professor Laurie for invaluable help and advice, and also to Dr. W. K. Spencer.

A.M.M.

### DRAFT SYLLABUS—Diploma in Biology.

#### Section A.

##### *A Study of the Continuity of Evolutionary Development.*

Introductory.—What is meant by a living organism. Brief résumé of differences between the Higher Animal and the Higher Green Plant. The Animal a cannibalistic mechanism, obtaining plants or other animals as food, and possessing in association with this habit (a) a mouth and alimentary canal, and (b) considerable powers of locomotion. Locomotion associated with a muscular and a nervous system, and in the higher forms with a compact skeleton, and leading to (a) bilateral symmetry and (b) increased sensitivity, including in the higher forms a complex brain and sense organs.

##### One-celled Organisms.

###### General Characters.

Holophytic, holozoic and saprophytic modes of nutrition.

Relation to disease—bacterial diseases, protozoan diseases.

Relation to soil.

Marine forms.

Evolution of sex.

Multiplication of cells to form protozoan colonies as a form of merism.

Origin of metazoa following differentiation of form and division of labour.

Volvox as illustrating the establishment of such differentiation, there being in this organism a distinction between reproductive cells and somatic cells.

Further division of labour leading to the differentiation of somatic cells into protective and nutritive and nervous cells. Illustrate by reference to coelenterates and sponges. Note the radial symmetry of these groups associated with the relative absence of locomotion. Repetition of zooids as a form of merism appropriate to fixed organisms. In dealing with coelenterata there will be included a special reference to the ctenophora as of interest in relation to the platyhelminia.

Locomotion established in platyhelminia and, in relation therewith, bilateral symmetry. Associated also with locomotion is the greater development of muscle and the greater concentration of the nervous system and the establishment of an excretory system. The shifting back of the origin of muscle and connective tissue to an early stage of embryological development leads to the formation of a third germ layer (*cf.* ctenophora). But the platyhelminia still lack an anal

opening, a cœlom and a blood vascular system and in the absence of the latter each system has to solve its own transport problem.

Pooling of transport arrangements by the formation of a blood vascular circulatory system; a very notable advance leading to the possibility of considerable reorganization of structure. Establishment of anal opening and of cœlom. The above features are illustrated in the annelid which represents a very fair achievement considered as a mechanism for living holozoically. Metameric segmentation, a form of merism appropriate to bilaterally symmetrical animals. But in the annelid there is still no substantial compact skeleton.

**The arthropoda**—evolved in association with an external skeleton. General classification, leaving over the insects for more detailed treatment under B3.

**The chordata**—evolved in association with an internal skeleton. *Amphioxus* as a simple chordate. *Ascidians* as an example of degeneration. Progression of type in fishes; dipnoi and the conquest of the land. *Amphibia* and *reptilia*. Birds of the air. Mammals.

To aid perspective, certain groups have been omitted from the above survey. Among these the *echinodermata* and the *mollusca* call for brief reference. It is desirable also that the phenomena of parasitism should have special consideration.

**Echinodermata.** Radial symmetry of *crinoid* in relation to fixed habit. External features of *ophiuroid*, *asteroid* and *echinoid*. *Pluteus* larva.

**Mollusca.**—A group of unsegmented animals with cœlom, blood vessels and external skeleton, which has achieved a relatively high degree of development. Consideration of the hypothetical ancestral form.

Main divisions of the group as illustrating evolution in relation to sedentary, creeping and more active modes of life respectively.

**Parasitism.**—Modification of structure and life-history in *trematode*, *cestode* and *nematode* in relation to parasitism, illustrating departure from the main trend of evolution in association with a changed mode of nutrition. Relation of some members of these groups to man, lower animals and plants. *Succulina* as an extreme case of parasitism. Parasitic protozoa have already been dealt with above. Parasitic insects will be dealt with in the course on entomology.

## Section B.

### *A more detailed Study of Selected Portions of A.*

- (1) **Mammals**, dealt with especially in relation to environment, and leading up to man. The races of man. Physiology, based on comparative physiology. Heredity in man. (Autumn Term.)
- (2) **Embryology.**—Maturation and fertilisation. Early stages of development in *amphioxus* and *frog*. Detailed practical study of development of chick to end of third day. Early stages of rabbit and its embryonic membranes. Some study of organogeny as may appear appropriate. Artificial fertilisation (*Echinus*). Mechanism of development including Darwin's theory of pangenesis, Weismann's theory of determinants, regeneration experiments of Driesch, internal secretions, etc. (Lent Term.)
- (3) **Entomology.**—Life-histories and adaptations of insects selected on account of their interest for school work, and their relation to man. (Summer Term).

### Section C.

#### *Variation, Heredity and Evolution.*

(Lectures, practical work and essays, two meetings a week, throughout the Autumn and Lent Terms.)

Evolution as "descent with modification." The evidence for it from comparative anatomy, embryology, palaeontology, and geographical distribution.

The different kinds of variation and their origin, inheritability and the part they have played in evolution.  
Variations due to changes in environment (modifications).

Variations due to changes in factors of inheritance (mutations).

Transmission of factors of inheritance.  
Inheritance of modifications.

Galton and the statistical study of variations by the frequency polygon.  
Johannsen and pure line heredity.

Mendel and the experimental study of the inheritance of mutations by cross-breeding. Morgan and the question of location of factors in chromosomes and of their crossing-over.

Doncaster and Goldschmidt and the determination and inheritance of sex.

Theories of the method of evolution.  
Lamarck and use-inheritance.  
Darwin and natural selection.  
Weismann and continuity of the germ plasm, with natural selection.  
Formation of a general theory of the method of evolution on the basis of the above considerations.

### Section D.

#### *Biology in relation to Human Life:*

(Two meetings a week in the Summer Term.)

Philosophic value.

Relation to industry, agriculture and fisheries.

Relation to physiology and hygiene.  
Sex education.

Relation to public health.

Heredity in man.

Eugenics, including some study of Mental Deficiency and the 1914 Act.

Position of biological studies in other countries.

Place of biological teaching in schools.

NOTE 1. The historical and biographical aspect of the work will be emphasized, but rather by references introduced into any of the Sections A, B, C, D, as may be appropriate, than by having a separate course of lectures. As, however, most of this work will be done under the same section (C) it will have some coherence. Lacy's "Biology and its Makers" should be read by students.

NOTE 2. In addition to formal lectures and practical classwork, there will be discussion classes and field work.

### CONDITIONS OF SERVICE COMMITTEE.

The times are momentous for those engaged in Training College work. The new Superannuation Bill is being passed through Parliament and the long awaited Departmental Committee's Report is now in the hands of the public.

Taken all round the Superannuation Bill is a very satisfactory one. In so far as it is not so your committee is taking steps to try to have it

improved. The outstanding defect, seeing that the Bill is on a contributory basis, is that it is so phrased that no one is to have a statutory right to its benefits, which are to be given by favour of the Treasury and the Board of Education. In actual practice it may well be that this may not be so important as it seems; but, if it can be managed, we shall secure that the phraseology of the Bill is altered so

as to secure benefits to the individual as a right (except of course in cases of grave misconduct). Of similar nature is the clause in the Bill which states that the Board *may* consult with teachers and authorities before drawing up rules, etc. Lord Emmott's committee recommended that a properly constituted Advisory Committee should be set up for such purposes, and this is what your committee is trying to secure. Many teachers are nervous because there is no Funding Scheme provided for in the Bill, but your committee is not greatly concerned about this omission as the Bill carries with it a guarantee that the Government shall meet all obligations as they arise.

The Training College Association has for long urged the desirability of opportunities being given to members of Training College staffs to refresh themselves and re-equip themselves for their work by means of the so-called "Grace Term." The report of the Departmental Committee recommends something of this nature, so an attempt is to be made to secure that in the new Superannuation Bill time so spent shall be reckoned as pensionable service.

A series of amendments to the Bill have been drawn up, and the T.C.A. is working in close co-operation with the Secondary Teachers' Associations, the Rev. R. Hudson having been appointed to represent the T.C.A. on a small joint committee. The committee stage of the Bill will most likely be over by the time these notes appear, but members may rest assured that their interests are being watched.

The Conditions of Service Committee has not been inactive in the matter of salaries. In March a deputation representing the T.C.A. and the Council of Principals interviewed Lord Eustace Percy—the fourth President of the Board of Education to be so interviewed since we began to move seriously in this matter. He was not

unsympathetic but wanted time to consider ways and means and, in particular, he wanted to see what the Departmental Committee's Report had to say. We now know what it has to say, and on the whole that is distinctly in our favour. The summary statements (page 161) will be known to all readers, but it is worth while to repeat it here. It is "that in view of the importance of their work and its special character, the scale of salaries for men and women on the staffs of training colleges should be distinctly higher than the scale of salaries authorized for them at present, and that the salary of the principal of a Training College should not be based solely upon the size of the College." In the body of the report the argument in favour of this is set forth and covers two pages (95-6). It is clear that the Departmental Committee regard this matter as fundamental in the proper functioning of the Training Colleges, for on page 114, in expressing confidence in a general advance, there is mentioned among other conditions, "the improvement in salaries which we contemplate for the staffs of Training Colleges," whilst again on page 135, in the chapter on financial questions, prominent amongst other reasons given for increased expenditure (which are claimed to be "not extravagant proposals") is "the higher salaries needed to ensure that Training College staffs are uniformly of the quality which the cardinal importance of their work as *pastores pastorum* demands." It now remains for the President of the Board to suggest the means by which he proposes that these recommendations may be translated into action. This may take some time and in the meantime one can only counsel patience. It will be far better to take the time necessary to arrive at a settlement which may be regarded as fairly satisfactory for some years than to hurry through a hastily patched up scheme which might be unsatis-

factory from the beginning. Meanwhile, for many, salaries are being continued on the old basis, but in some cases modifications have been made under the influence of the Burnham Award concerning salaries of teachers in secondary schools. In the case of one college at least this has resulted in cutting off special allowances ; and this in spite of the fact that the Burnham Secondary Committee has unanimously declared that framing scales of salary for Training College lecturers was outside its province. The "Burnham Award" was not made for secondary schools and Train-

*ing Colleges* as expressed in a recent advertisement, and so the authority for the college concerned has been reminded.

Members need not, we think, be unduly alarmed, for a final settlement cannot be far off, when one feels justified in hoping these difficulties will disappear. Pending such a settlement it will be helpful to this committee if members who are in any sense adversely affected by changes will notify the circumstances. A number of members have asked for advice, principally in connection with salary changes.

T. P. HOLGATE.

## BRANCH REPORTS.

### North Eastern.

<i>Chairman</i> .. .. ..	MR. WELPTON, Leeds University.
<i>Vice-Chairman</i> .. .. ..	MISS SPALDING, Bingley Training College.
<i>Hon. Treas. and Sec.</i> .. .. ..	MR. A. G. HUGHES, Leeds City College.

Three general meetings of the branch have been held during the year. On 7th March, at Leeds, Mr. Welpton as chairman for 1924, gave an inaugural address on the prospects of Training Colleges. On 24th May Mr. Raymont, Warden of Goldsmiths' College, met the branch at Ripon and explained the system of internal examination as practised in his college.

The autumn meeting was held on 11th October, at Leeds City College. There was a discussion as to whether the principles of teaching ought to

be an inspected subject—tested on similar lines to those at present adopted in the case of science and drawing. Subsequently at a joint meeting with the Principles of Teaching Section the Aberystwyth resolution as to the biological basis of education was debated.

Mr. A. G. Hughes left Leeds in the summer, and consequently to the great regret of the branch resigned the secretaryship. The Executive Committee appointed Miss Wragge (Darlington) to act as secretary and treasurer until the end of the year.

## SECTION REPORTS.

### French.

A meeting of the French Section was held at University College, Gower Street, on Wednesday, January 7th. Ten members were present and a useful discussion took place.

The points raised were :—

(a) Suitable books for use in Training Colleges.

The section noted with pleasure the production of a volume of "French Poems of To-day," by Messrs. Sidgwick and Jackson.

(b) The advisability of teaching formal grammar in college. The general opinion seemed to be that some proportion of time must be spent in the teaching of formal grammar in view of the

difference in attainment among students from different schools.

(c) The facilities offered by the Board of Education for students who wish to spend a third year in France. Apply to the Secretary, Board of Education.

(d) The facilities offered by the *Gilde Internationale* for vacation study in Paris. Lessons can be arranged with the *Gilde* for students with a limited time at their disposal. Apply to the Secretary, *Gilde Internationale*, 6, rue de la Sorbonne, Paris, V.

(e) Examination Papers. It was proposed and unanimously carried by the meeting that a request for a wider choice of subjects in French Composition in the Certificate Examination should be sent to the Board of Education. The Board has been notified of this suggestion.

(f) Various interesting methods of teaching spoken and written French were described and discussed by members.

### Handwork and Needlework.

At the January meeting, 1924, Miss Sarjeant was elected convener of the Section for 1924. It was then decided to discuss, at the Aberystwyth Conference, the Handwork pamphlet, special reference being made to "The Students' College preparation for carrying out suggestions."

It was further proposed that the Council be asked to approach the Board to give a credit mark to students who have obtained credit standard in handwork and needlework, and also in such cases that the word "Handwork" should appear on the student's certificate.

The Council were approached on the matter of financing sections so that they might sometimes engage speakers, but the constitution of the T.C.A. prevented this being sanctioned.

Owing to the closing of the Warrington Training College, Miss Sarjeant resigned the convenership and Mrs. Simpson acted as convener till January, 1925.

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### Mathematics.

The chief event to be recorded is a useful meeting of the section at the Aberystwyth Conference, at which several questions arising out of the teaching of mathematics were discussed in an informal but helpful way. The question of the new syllabus could only be considered tentatively, as the first papers under the syllabus were not set until the final examination in 1924. It was then found that the discussion has been an "intelligent anticipation" of the scope and nature of the questions set in the new subjects, and subsequent opinion has been on the whole favourable to the papers. The Convener has put before the Chief Examiner the question of the extreme length of the papers, as to which there have been complaints: it is felt that a really liberal choice could be given with a paper covering less than four whole pages of print. In the advanced course, it was pointed out by the Convener that students were not required to take the *whole* of the syllabus, and that colleges should not be criticized because questions from certain parts of the papers had not been attempted by the students.

The possibility of the Section undertaking some piece of research work has been considered, and an attempt is being made to discuss the question of the teaching of proportion. Questions have been circulated and some replies received (including a valuable contribution from the N.W. Branch Section), but the material has not been sufficient to enable any definite recommendations to be made. It is hoped that further work on the subject may be undertaken. Great difficulty has again been experienced in arranging meetings

of the branch sections, some of which are very small ; this is a great handicap to the accomplishment of much really effective work.

### Drawing.

There was a very small meeting of this section at the London University on January 7th. It was rather unfortunate that the Teachers' Guild (Art) was held at the same time, as this probably prevented some of the Training College members being present. No reports from Branch Conveners have been received.

### Music.

The meeting of the Music Section on Wednesday, January 7th, was well attended on the whole. Many of the

branches were represented and their suggestions were helpful. One could have wished that more members of the Southern Branch had been present.

The report of the year's work was read. Then followed a discussion on the place of music in Education, and the fact that it is now a matriculation subject.

The new "Syllabus for Examination and Inspection in Schools" was considered ; and the suggestion made that discussions between the Headmistresses of Secondary Schools and Training College Lecturers would be helpful in dealing with these new regulations, in so far as they affect the choice of this subject and its preparation.

The General Convener was re-elected for 1925.

## TEACHERS' NATIONAL COMMITTEE FOR THE PROMOTION OF THE TEACHING OF THE HYGIENE OF FOOD AND DRINK IN SCHOOLS.

*Chairman : MR. FRANK FLETCHER,  
Head Master of Charterhouse.*

*Hon. Secretaries :*

MISS COWARD, Head Mistress of the Broughton High School.

MR. WALTER SHAWCROSS, Head Teacher, George Leigh Street Council School, Manchester.

This committee was formed in April, 1924, as an outcome of the work done by the teachers to secure the raising to eighteen of the age at which young people might be served with intoxicating liquor. During the year the committee circulated the Board of Education Syllabus on "The Hygiene of

Food and Drink" to the Head Teachers of all elementary schools of England and Wales, and as a result it was found that nearly three thousand departments were using the syllabus, and about eleven hundred intended to include it in the future. If any college wishes for an occasional lecture by an expert on the Hygiene of Food and Drink in addition to their ordinary course, they should write and state their wishes either to one of the Honorary Secretaries, or to one of their representatives on the committee.

T.C.A. representatives on the committee are : WINIFRED MERCIER, M. J. REANEY.

## NURSERY SCHOOL ASSOCIATION.

### Suggested Course of Training for Nursery School Teachers.

**NOTE.**—This scheme has been sent to the T.C.A. by the Nursery School Association and represents the considered views of the Association as to the preparation and qualifications necessary for superintendents

and trained assistants in nursery schools and classes. By the courtesy of the Nursery School Association the T.C.A. Council had the opportunity of seeing the scheme in an earlier form.

*Entrance Qualification.*—As required by the Board of Education for students entering recognized training colleges.

(A). *Two Year Course.*—Leading to the teachers' certificate of the Board of Education.

(B). *Third Year Course.*—Open to trained certificated teachers, including holders of the higher certificate of the National Froebel Union, who are college trained.

**NOTE.**—Untrained certificated teachers including those holding the higher certificate of the National Froebel Union should be required to take the Two Year Course.

#### *Final Examinations—*

- (1) It is recommended that the final test of proficiency should be provided for by an "alternative examination."
- (2) That credit in this examination should be given for students' own records of observations, experiments, etc., made during the course of training, as well as for written papers.
- (2) That a minimum of twelve weeks' practical work in schools should be required.

#### **(A). Two Year Course.**

##### **I. EDUCATION.**

(a) *Theory.*

1. Child Study and Psychology.
2. Principles of Education.
3. Administration and Organization.
4. Studies in the History of Education, including the place of the Nursery School in the community.

(b) *Practice.*

1. Work in the Nursery and Infants' Schools.

2. Visits to other Nur-sery and Specia Schools.
3. Parents' Clubs and visits to children's homes.

##### **II. NATURE STUDY.**

(a) *Theory.* Introduction to biology, through nature study and gardening.

(b) *Practice.* The making of children's gardens.

##### **III. HYGIENE.**

(a) *Theory.*

1. Elementary studies in anatomy and physiology.
2. Personal hygiene.
3. Conditions necessary for the healthy growth and development of the young child, including the hygiene of food and drink.
4. Study of the spread of infection.
5. The Child Welfare Movement.

(b) *Practice.* Work in Hospitals, Clinics, or Out-patients' Depts., First Aid, Visits to Public Health Institutions.

##### **IV. LITERATURE.**

(a) *General.* The course to include some study of drama, poetry, prose, myths, and folk-lore.

(b) *Professional.* Literature for children, story telling, dramatization.

##### **V. SPEECH TRAINING.**

(a) For the student.

(b) For the children, studies of the best methods of training young children.

## VI. MUSIC.

(a) *General.* 1. Simple theory of music.  
2. Ear-training.  
3. Singing.  
4. Eurhythms.  
5. Musical appreciation.

*Note.*—The study of some musical instrument to be encouraged.

(b) *Professional.*

1. Songs and rhythm for children.  
2. Singing games.  
3. Children's band.

## VII. ART AND HANDWORK.

(a) General course of handwork, which should include practice in the making and mending of things needed for the nursery school and garden.  
(b) Special study of one craft, or drawing and design.  
(c) 1. Studies of work suitable for children.  
2. Story illustration and memory drawing.  
3. Printing.  
4. The making of children's garments. Cookery for young children.

**B. "Third Year" Course.**

This course, which may be modified to meet the needs of individual students, should preserve the character of a "Refresher" Course. Visits to nursery schools and all kinds of social and educational institutions should be encouraged.

Opportunity for meeting workers in other fields—*e.g.*, health visitors, doctors, factory inspectors, etc., should be given, with a view to the understanding of social problems.

Educational tours, at home or abroad, should be organized by the college, and counted as part of the college course.

The full participation in the recreational and social life of the college should be considered important, especially in view of the isolation of many nursery school workers.

## I. PSYCHOLOGY AND EDUCATION.

(a) Advanced course in psychology. The psychology of health. Special studies of backward or defective children and of super-normal children. Religion in early childhood.  
(b) More advanced work in history and administration of education.  
(c) Social education. Parents' clubs. Co-operation with other bodies. Practice in speaking.  
(d) Practical training in the supervision of young teachers.

## II. HYGIENE.

(a) Physiology and child hygiene, or studies in biology.  
(b) Mother craft and domestic science.

## III. ELECTIVE COURSE

in any subject for which the need or desire is felt.

*Note.*—"Refresher" Courses of three months should be organized from time to time.

**CONFERENCE OF THE BOARD'S INSPECTORS WITH THE GEOGRAPHY SECTION.**

This conference took place on Monday, April 27th. Mr. Hinton, H.M.I., presided, and the T.C.A. was represented by Mr. Braddock for the Council, Miss Hippisley Barnes, General Convenor of the Geography Section, and twenty-two other members.

Amongst the topics discussed was the desirability of two three-hour examination papers in advanced geography. This was urged to bring the subject into line with other subjects and to allow of a paper on the General Principles of Geography and of more

adequate testing of the two years' course of work.

In reply, Mr. Hinton pointed out that the examination time table was already too congested, and that a general knowledge of geographical principles was assumed in the case of all students permitted to take the advanced course.

Complaint was also made of the slight difference observed between the ordinary and advanced papers as at present set. The Chairman drew attention to the real difficulty in judging the intrinsic difficulty of an examination paper and said that the difference between the two stages was borne in mind in the marking of the papers.

Many members spoke of the general lack of agreement between the results of the Board's Examination and the Schedules sent in by the Colleges.

The Board's inspectors questioned whether the variability was so great as was suggested and said that special care was taken over the scripts of students recommended by the Colleges for distinctions.

Another important discussion took place on the treatment of local geography and the testing of this work for examination purposes. It was left for the Association to make a formal request to the Board that a certain percentage of marks should be allowed for theses presented by students. The meeting did not agree on the exact percentage that should be allowed.

Other topics discussed were the difficulties of the wide syllabus for the ordinary course, and the type of question set in the geography method paper.

## CONFERENCE WITH HEAD MASTERS' ASSOCIATION.

A Joint Conference with the Headmasters' Association was held at University College, London, on Thursday, 8th January, 1925. On behalf of the Headmasters there were present Mr. W. A. Knight (Sexey School, Bruton, Somerset), ex-President of the Association; Mr. Jenkyn Thomas, the Secretary, of Hackney Downs School, London, and eight or ten other members. The Training College Association was represented by the President (Professor Bompas Smith), Lt.-Col. Douglas, Messrs. Harris (Bangor), Holgate (Leeds), Brock (Goldsmiths), Braddock (Birmingham University), Professor Dover-Wilson (King's College, London), Rev. R. Hudson, and others.

The discussion was informal, and was mainly on the following points:—

### (1) The Supply of Candidates for the Training Colleges.

It was pointed out that the pupil teacher source of supply was being replaced by candidates from the

secondary schools. The vital importance that such candidates should remain at their schools till seventeen or eighteen was stressed. In order that the most suitable type should be attracted it was realized that the status of the teaching profession should be raised, that bribery to enter the profession should be discouraged, and that local authorities ought, very largely, to increase their scholarships to the secondary schools and their maintenance grants, but should not earmark men for any particular profession.

### (2) Choice of Subjects for Qualifying Examinations.

It was found that many candidates were qualified by having passed the Matriculation or the Higher Schools Certificate Examination to take University Courses in the College, except for the omission of some important subject like Latin for the Arts course. It was thought that more stress should be laid on the humanistic

side, especially the English language, than on purely the science side of studies. Many speakers called attention to the deficiency of attainment in candidates in mathematics, music, and reading aloud.

### (3) Recommendation of Candidates by Headmasters.

The help of headmasters was sought in recommending the right type of candidate for entrance to the teaching profession, and that the points to look for were not merely academic attainments but particularly those of personality, influence over others, physical fitness, taking part in school games, and signs of teaching capacity. In these respects testimonials, to be of real value for choosing the right candidates for the training colleges, must be confidential and not open.

### (4) Interchangeability of Staffs.

In the selection of their staffs it was pointed out that not only were headmasters getting in increasing

numbers degree men from the colleges, but might with advantage get more experienced teachers from among the junior members of the staffs of the training colleges themselves. It was thought, too, that it would be of great mutual benefit if there could be an interchange of duties for short periods between certain members of the staffs of secondary schools and of the training colleges. The latter suggestion particularly commended itself to all present.

The discussion revealed so many points of close interest to the two Associations, which it was thought required much deeper consideration in order that they might be of real practical value, that it was unanimously resolved that a joint committee be formed from the Training College Association and the Associations of Headmasters and Head Mistresses for this purpose. A representative of each Association undertook to place this resolution before the next meeting of its own Council.

## CHAMONIX AND MONT BLANC.

A party is being made up for a holiday tour to Chamonix and Mont Blanc. Members may receive instruction in field work in geology, botany, regional survey, and sketching, to the extent that they desire, though the whole of the time will not be devoted to work. Some open-air talks on the work of the pioneers—Forbes, Tyndall, De Saussure, Vallot, and Ruskin will

be given whilst visiting the scenes of their work.

The party will leave London on July 31st and arrive back in London on August 15th. The cost of the tour is fifteen guineas. For further particulars a stamped addressed envelope should be sent to Valentine Davis, The Cheshire County Training College, Crewe.

## PROFESSOR NUNN'S SYLLABUS IN ELEMENTARY MATHEMATICS.

**Note.**—The attention of the Authorities of the Training Colleges is called to the fact that Professor Nunn's "Elementary School Syllabus in Mathematics," which appeared in the November and February issues of *The Forum* has now been reprinted in fairly large quantities. Considerable numbers of

copies have already been sold. As possibly many colleges may require copies for next session, Professor Valentine will be grateful if a rough idea of the number required by any college can be given him at once so that the type may not be kept standing unduly.

# The Training College Bulletin

*Edited on behalf of the*  
**TRAINING COLLEGE ASSOCIATION**  
*by*  
**Lt.-Col. W. J. DOUGLAS,**  
**Saltley College, Birmingham.**

No. 9

NOVEMBER, 1925

It is, perhaps, well at times to review the work and worth of the Training College Association in its various activities so that members may be fully acquainted with its proceedings and be stimulated to continue to give to it their earnest support in the important work it is doing on their behalf. Since the war the Association has grown considerably in both numbers and importance. It exists for all and is working in the interests of all members; but even now it does not include all the members of the staffs of some colleges. The Association has a claim for the support of all, and those who are not yet included in its membership should realize that they may be a source of weakness to their fellows.

This is no attempt to estimate all the values of the Association, for many of its values are, by the nature of the case, somewhat indefinable, though, nevertheless, real. Through its Council and officers the Association is in constant touch with the Board of Education, and is in friendly consultation with it on all matters affecting Training Colleges and their staffs. These relations are undeniably good, and if nothing else could be quoted the footing which has been gained in this connection is sufficient to claim unanimous support, for it is reflected in the relations of the Board and its officers with each College.

The Training College Association is working in complete harmony with the Council of Principals, and, through the Joint Standing Committee of the two bodies, which the President of the Board undertook shall be consulted, as

an advisory body, before any changes of policy or issue of regulations which may affect the Colleges, there has been secured a means of presenting a united front in all important negotiations. The new conditions for the examination of students were worked out in agreement with the Board.

The past year has been an exceedingly busy one for the Council of the Association, its committees, and its officials. The report of the Departmental Committee on the Training of Teachers has been sifted, and the Association's policy in regard to it has been drafted and sent to the Board. This has been a task of no little difficulty, which has entailed much expenditure of time and energy. Had there been no Association, in what an impossible situation would the Colleges have found themselves, with no means of consultation and of expressing a collective opinion! The report itself in one vital respect is undoubtedly strongly influenced by the evidence given before the Committee by representatives of the Association, for it justifies fully the existence of the two-year Colleges. In this connection the Association, after making enquiries, has been able to assure the Board that the overwhelming opinion of its members is opposed to admitting pupils who have passed the second schools examination for a one-year course only.

The Teachers' Superannuation Bill was closely followed, and every effort was made, by interview and correspondence, to secure that the Act should give as favourable terms as it was possible to obtain.

Though the question of suitable salaries for principals and staffs of Training Colleges is still unsettled, the Association is informed that an attempt to do this is imminent. Whatever may be the result of such negotiations as may ensue, there can be no doubt for a moment but that had it not been for the persistent efforts of the Association, Training College staffs would have been condemned to the mere Burnham secondary school salaries. It was the Association, and the Association only, which obtained for its members such concessions in regard to residence and responsibility as at present obtain.

Fortunately, it is not every member of the Association who needs advice or individual help. Numbers, however, do so, and numerous letters have been received, expressing thanks for advice and help given concerning such matters as salary, pension, conditions of appointment and service. The Association is at the service of any or all of its members in this respect.

The *Forum of Education* is the possession of the Association, and its members receive copies free. It is

establishing itself in the market as a journal of high repute amongst those interested in education.

In order to give every member a chance of taking an active part in the Association, branches were formed so that questions might be more fully discussed and reports and recommendations sent to the Central Council. This may result in a little repetition and a possible slowing up of business, but the latter is more than compensated for by the increased interest created by the branch meetings and discussions. The business side of the work—salary scales, pensions, etc.—while receiving every necessary attention, is kept in due proportion, and the fostering of educational progress and efficiency, particularly in those problems which more directly affect the work and welfare of the Training Colleges, is regarded as the main object of the existence of the Association. As educational associations go, our Association is a relatively small body, and in order to be thoroughly effective it should include every member of the staff of every College.

EDITOR.

## REPORT OF THE DEPARTMENTAL COMMITTEE ON THE TRAINING OF TEACHERS.

The following letter has been submitted to the President of the Board of Education :—

SIR,—We are forwarding on behalf of the Training College Association and the Council of Principals, a statement of their views on the Report of the Departmental Committee on Training in the hope that you will find time to consider them, and if you think fit to ask for the elucidation of any points, that you will invite representatives of the two Associations to meet you.

The two Associations welcome the prolonged investigation that was made into the conditions and functions of

the Two Year Colleges, and they are most heartily in agreement with the finding of the Committee that for others than graduates or certificated teachers, the course of training should extend over two years at least. We have been unable to find in our two Associations any reasoned opinion in favour of the shorter course recommended in Memorandum A, and on the other hand there is overwhelming consent in the view that more than two years is advisable if it can be made available.

The connection between the universities and training colleges, including the work of examining advocated by the report, has the undivided support of the two Associations.

The Associations would most heartily welcome a Central Representative Committee to advise the Board of Education on all matters concerning the supply and training of teachers, and they believe that if such a Committee were set up it would perform a great deal of valuable work.

The Associations are particularly glad to see the Committee's pronouncement of policy on the necessity of professional training for the work of teaching, and hope that the Board of Education will be able to give effect to the recommendation that as an ultimate objective the Board should have in view the recognition of none but certificated teachers, at not too distant a date.

We enclose two papers :—

A. A list of the recommendations with which the Associations are in agreement, and upon which they have little comment to offer, and

B. Comments on certain of the recommendations.

We are, Sir,

Yours obediently,

ANNIE LLOYD EVANS,

KATHLEEN B. ANDERSON,

*Secretaries.*

### Paper B.

The Joint Committee of the two Associations beg to submit the following comments on certain of the recommendations :—

### Recommendations 10, 11, 12.

The Committee feel as strongly as when the Training College Association and the Council of Principals gave evidence, that the recognition of uncertificated teachers for life ought to be discontinued, and they would make it a condition of complying with the Board's invitation to aid in short courses for such teachers that their temporary recognition must first be granted. They do not feel that the "short course" recommended is the best solution. For the uncertificated teachers in the area in which a Training

College stands weekly classes extending over longer periods seem to be better than intensive short courses, as the teachers are not dissociated from their work and can bring to the lecturer their practical school problems.

### Recommendation 19.

See evidence given by the Training College Association before the Departmental Committee :—

"Where such schools are not available in the area, should modifications be allowed, provided that a general education of equivalent character is secured ?

*Answer.*—No, unless the school provides a training and standard of education equal to that of a secondary school. We do not advocate any rival to the secondary school."

### Recommendations 23 and 25.

The Committee are in complete agreement with the principle that a unity of purpose is essential in a Training College Course. Every curriculum should be framed with this end in view, so that the professional and academic work are both parts of one whole. While the curriculum of every college will thus be vocational in purpose and have some common features, yet the freedom enjoyed by the colleges under the present jurisdiction of the Board in framing their curricula is essential to their efficiency. Every effort must be made to preserve this freedom under new conditions of examination.

The Committee feel that the report in recommending that every student should teach *all* the ordinary subjects is reversing the sound educational position already reached in secondary and elementary schools.

In arguing that a "teacher student (see page 93) who has had the benefit of secondary education up to the age of 18 or 19 will usually have carried the study of the general subjects of the elementary school curriculum up to a point where the learning of more facts ceases to be the main considera-

tion," the Committee submit that the report overlooks the fact that quite rightly a process of selection of subjects has already begun in the secondary schools, so that the study of certain of the subjects of the elementary school curriculum has been discontinued some years before the completion of the secondary school course and other subjects, *e.g.*, Latin, Mathematics, French, etc., have been substituted.

The Committee submit that the same principle of selection should be continued in the Training Colleges in the interests of efficiency and economy of effort, always having due regard to the needs of rural and slum areas and of the youngest children in all schools (cf. Rec. 30 and 31). This selection of groups of subjects for the Training College student must not be confused with specialization in the technical sense. The student will become an efficient form mistress, teaching a group of subjects.

The type of specialization described in the report is not that with which we are familiar in elementary schools. Whereas the secondary school teacher usually teaches one or at most two subjects, the elementary teacher is usually a class teacher omitting certain subjects and teaching certainly more than one or two.

#### Recommendation 24.

The T.C.A. and Council of Principals hold the view that in practice a candidate for entrance to a Training College should in order to gain a good chance of acceptance present a certificate with not less than four credits.

An attempt may be made to state the examination qualifications desirable in candidates from the Committee's point of view.

*The recommendation of the Departmental Committee that one year at least (if two are unattainable) should be spent in study subsequent to the qualifying examination is warmly supported. The importance of this year of study lies in the curriculum followed and not in any opportunity it*

may afford for obtaining a further examination qualification. We do not, therefore, discuss it here, except to make it clear that we hope the year will not be used in general as a preparation for taking the qualifying examination a second time in order to obtain more credits.

1. Candidates who hold a full Higher Certificate, and are recommended on personal grounds by their head mistresses, can safely count upon being accepted by the college of their choice. It is unnecessary for them to apply to several colleges at once. The same is true of those few candidates whose artistic or musical gifts have been developed by an equivalent course after the qualifying stages.

2. At the other end of the scale we have candidates who present certificates with less than four credits, and these gained in the less difficult subjects of the school curriculum. These candidates call for careful consideration. (a) The certificate may not represent the candidate's ability, and the head mistress may be able to explain the temporary causes for the low standard reached. In these cases the head mistress will decide whether the candidate ought to take the examination again, but in general this would not be desirable. (b) When the certificate fairly represents the candidate's ability such questions as the following arise:—

- (1) What is the personality of the candidate? Mediocre or outstanding?
- (2) Is her physique exceptionally good?
- (3) Has she skill or knowledge untested by the examination?

If the answers to such questions as these show that the candidate possesses outstanding qualifications for teaching of which the examination took no count, she must be carefully considered for acceptance, but if not such a candidate should be discouraged at this stage from entering the teaching profession. Blamelessness of character,

and the absence of other alternatives for a livelihood, should not lead anyone in authority to recommend a boy or girl to be a teacher.

3. It follows then, that the large majority of students in Training Colleges will be drawn from those candidates who hold a certificate with practically the same number of credits as is required for Matriculation but not necessarily the credits in the same subjects. A credit in English should be one of the credits obtained and no one should be recommended for the teaching profession whose command of spoken and written English is markedly below that obtaining in the school where she has been educated.

### Recommendations 26 and 28.

The Committee draws attention to the fact that in Rec. 26 no mention is made of academic qualifications, and the proviso *re* experience in elementary schools is made much more definite than in the text. The Committee suggest that in all future appointments members of Training College staffs should have high academic qualifications, should be required to have successfully completed a course of training, and, as a rule, to have had not less than four years adequate and varied experience in teaching.

The Committee consider that it is very desirable that members of the staff should have knowledge of elementary school conditions and other types of social work, but deprecate limiting the choice by stipulating that experience in one type of school is essential, as the recommendation seems to suggest.

(N.B.—The Committee understand that the term "high academic qualification" should include the highest qualifications in Music, Art, Domestic Science, Hand-craft, etc.)

The Committee support the suggestion that members of Training College staffs should be encouraged to take special leave of absence for the purpose of study and research, and would suggest, further, that such leave should on some occasions be used for work in connection with the Inspectorate.

### Recommendations 27 and 28.

The Committee is pleased to note that the report stresses "the higher salaries needed to ensure that Training College staffs are uniformly of the quality which the cardinal importance of their work demands" (Chap. XI, p. 136), and that a condition of the anticipated increased efficiency of the Training Colleges is the "improvement in salaries which we contemplate for the staffs of Training Colleges" (Chap. VIII, p. 114).

The Committee is in full agreement with Chapter VII, pp. 95 and 96, of the report in the enumeration of the qualities desirable in those who offer themselves for Training College work, in the rejection of the Secondary School Scale as a suitable basis for the salaries of members of Training College staffs, and in the condemnation of the practice of determining the salary of the Principal of a Training College by its size as compared with that of a secondary school. The Committee adheres to the recommendation of the Report of the Departmental Committee of 1918, to which reference is made in the present report (footnote to p. 95), that "the emoluments of ordinary posts in colleges . . . should be approximately similar to those of higher posts in schools, such, for example, as Headships of important elementary schools and certain posts of special responsibility in secondary schools."

The Committee, therefore, welcomes the definite recommendation (Rec. 27) "That in view of the importance of their work and its special character, the scale of salaries for men and women on the staffs of Training Colleges should be distinctly higher than the scale of salaries authorized for them at present, and that the salary of the Principal of a Training College should not be based solely upon the size of the college."

The Committee cordially agrees that "the authorities of the Training College should be encouraged . . . to give favourable consideration to applications . . . made by members

of the Staffs of Training Colleges for occasional leave of absence for the purpose of study or research at home or abroad" (p. 96) which is definitely recommended in conclusion 28. The Committee is of opinion that absences for such purposes, "so far as they are approved by the Board, should be on full pay, and should be regarded for purposes of salary and pension as service." (See remarks regarding attendances at courses by Elementary School Teachers, Chap. IX, p. 120.)

### Recommendation 29.

#### DEMONSTRATION SCHOOLS.

(The term Demonstration School to include such educational organizations as shall meet the needs of the Training College for the purposes of demonstration.)

Different colleges make varying uses of the opportunities provided by a Demonstration School, but all are agreed that the main object of such a school is to exemplify a good type of school, in organization and discipline, as well as in methods of teaching. The voluntary school work so often undertaken by teachers is also of great value. Thus, the Committee interprets the term Demonstration as applying to the school in all its activities, not merely to the methods used in teaching, and their desire is for a first-rate school active in all the functions of such a school.

#### STAFF.

1. In order that the best teachers available should be attracted into the school, the Committee consider that the staff should receive an addition to the ordinary salary scale.

2. The teachers in a Demonstration School should be recognized as associate members of a college staff in virtue of their work done in the school. The Committee are anxious that no measures be taken which might lead to the work of the school as such being sacrificed to the dual position of any member of its staff.

#### MANAGEMENT.

1. Every Demonstration School should have a local committee, on which the Training College should be effectively represented, with power to recommend teachers for appointment, and to make representations in the interests of the school to the Local Education Authority who aid or maintain the school.

2. The Principal of the Training College should be *consulted* at all stages in an appointment to the Headship or to the Assistant Staff of a Demonstration School, and the Principal or someone delegated by him should be invited to be present when the appointment is made.

#### FINANCE.

A Demonstration School should be maintained or aided by the L.E.A. The Board of Education should pay an additional grant to the Training College for Demonstration School purposes. From this grant should be paid the extra emoluments received by the staff, and also such expenditure on equipment, apparatus, etc., as in the opinion of the local committee was necessary over and above the ordinary expenditure on such items in the area.

#### BOARD OF EDUCATION AND DEMONSTRATION SCHOOLS.

The regulations of the Board of Education for the training of teachers need to be made effective in practice. For this two things are necessary :

1. A machinery for giving the Training College power to exercise an effective influence—and

2. Financial assistance from the Board to support the extra cost of Demonstration Schools.

#### Recommendations 32 and 39. Special Courses, etc.

The Committee recommend that there should be more University Diploma Courses and also that other courses such as those in Music, Art, or the Crafts should be recognized by

a diploma from a chartered college or from a Joint Examining Board.

The Committee hope that the Board of Education will put the advantages of a Third Year Course before the Local Education Authorities.

### Recommendations 38, 40, 41, 42.

#### I. THE CONNECTION BETWEEN THE TRAINING COLLEGES AND THE UNIVERSITIES.

The Committee would welcome a closer connection for they realize that the Training Colleges would gain by coming under University influence and the possession of a University Certificate or Diploma would be for their students a qualification of recognized value. The Committee wish to emphasize certain aspects of the problem which they regard as important.

1. They recognize that connection by means of examining will be an essential feature in any scheme of association that may be formulated, but they feel that connection with the Universities should be real and should not be limited to examining only.

2. They consider that any scheme that is formulated should provide for the free admission of all colleges which desire it, subject to the fulfilment of certain specified conditions.

3. They believe that it is essential to preserve the individuality and special character of each college.

4. They welcome the recommendation that provision be made for University representation on governing bodies of Training Colleges.

#### II. EXAMINATIONS.

1. It is essential in approaching this subject to distinguish two different functions in the work of examinations :—

(a) The function of controlling the machinery of examinations. This is the work of administrative bodies.

(b) The educative function of devising syllabuses and setting and correcting papers. This should be as far as possible in the hands of the teachers of the subjects.

2. The principles for which we stand are :—

(a) The utmost freedom to experiment in choice of curriculum and in methods of work compatible with the maintenance of an assured standard. In order to secure this, colleges or groups of colleges should be free to plan their own syllabuses, and all responsible lecturers should take an important part in the examination. This should ensure the preservation of the individuality of each college.

(b) The maintenance of a high standard of work on the part of the Training College lecturers and students, together with the cultivation of the methods of investigation and enquiry in the advanced subjects usually considered typical of University work. The association with a University can secure this only if the staffs of colleges are all brought into personal touch with University experts in their own subjects.

3. The application of these principles points to the following suggestions for consideration :—

(a) A college or group of colleges to unite with a local University or Universities to set up an examining Board, *either* external to *or* within the University organization, in order to take over the control of the Training College curriculum and examinations now exercised by the Board of Education, the aim being to secure to each college the maximum of freedom compatible with maintaining a high standard.

(b) The machinery to consist of :—

- i. An administrative board composed, for example, of the Principal and at least one other person nominated by the governing body of each college, and certain people nominated by each local University of whom one at least would be from the Education Department. The Board would receive and endorse all syllabuses of work, appoint external examiners, control the administration of the examinations, receive and collate results, and determine all questions of passing and failing in the examination as a whole.
- ii. A Board of Studies in each of the main subjects of the Training College curriculum consisting of at least one professor or lecturer in the subject from the local University or Universities, and one lecturer or more in the subject from each constituent college. These Boards would discuss all syllabuses sent up by colleges or groups of colleges, and forward them to the Administrative Board, and also approve all papers and questions.  
(*N.B.*—Representatives from the various Boards of studies might meet occasionally in joint session.)
- iii. Board of Examiners, one or more for each subject, consisting in each case of individual lecturers responsible for teaching the particular syllabus, and an external examiner, not necessarily drawn from the local University or Univer-

sities. Each Board to meet and finally agree on results, and send them to the Administrative Board.

#### NOTES.

1. On the question of finance, it is clear that more money will be needed to work such a scheme. This can be obtained in one or both of the following ways :—

- i. From students' fees as recommended by the Departmental Committee.
- ii. From the Board of Education, who will be relieved of the work of examining.

The machinery which we have suggested is deliberately devised to secure the freedom of teaching staffs to develop their work.

2. The Committee welcome the suggestion that diplomas or certificates should be issued by the University.

3. The Committee make the following suggestions :—

(a) That the Board of Education or the Teachers Registration Council should grant the official status of a "trained certificated teacher" to each properly qualified student.

(The Board already accepts the principle in the recognition of "alternative examinations" for the purpose of certification.)

(b) That candidates who have matriculated and who hold the Teachers' Diploma or Certificate may under certain conditions to be prescribed by the University be eligible to proceed to the final examination for a degree in two years.

4. No comment is made on the relation of Training Colleges to Universities in respect of degree work, as the colleges concerned have recently been in communication with the Board on this subject,

## Recommendations 61, 63, 64, 65, 67. Grant.

61. The Committee are opposed to the principle of a loan system, as placing a burden upon the teacher at the outset of his career; but they recommend that the local Education Authorities shall be encouraged to give adequate maintenance grants where necessary, especially in view of a desire to increase the number of graduates entering the elementary teaching profession.

63. The Committee recommend that whereas in the case of a few colleges of a specialized character it is demonstrable that much of their efficiency depends upon the small numbers of their students, yet where on account of small numbers colleges cannot be economically and efficiently administered, and circumstances make it desirable, the Board should encourage not only the amalgamation of colleges, but also an increase in the number of students in a particular

college. The Committee think that the Board should consider proposals from the various colleges on their own merits.

64. The Committee welcome the proposal to stabilize the grant, but recommend that in fixing the amount full consideration shall be given to the varying numbers and circumstances of the different colleges, also to the scale of salaries to be adopted for lecturers in Training Colleges, and to the 5 per cent. contribution to be paid by governing bodies of voluntary colleges after 1928.

65. The Committee consider that this recommendation is already covered by the requirement that the fees charged in each college shall receive the sanction of the Board. They would recommend that the Board should have power to insist on a fee.

67. The Committee would strongly deprecate any measures which would tend to the localization of entrance candidates.

## NOTES.

### Appointments.

Miss Bazeley (late of Warrington) has been appointed Principal of the Home and Colonial College, Wood Green, in succession to the Rev. D. J. Thomas. Miss Hawkins (Chichester) has been appointed Vice-Principal of Crewe Training College.

### Annual Meeting.

The date of the annual meeting is fixed for January 7th. The speaker at the open meeting will be Dr. J. B. Baillie, O.B.E., M.A., D.Phil., Vice-Chancellor of the University of Leeds. A conference on the Departmental Committee's Report and Sectional Meetings will be held on January 5th and 6th. The colleges will be informed of the arrangements at a later date. It is regretted that it has been found impossible to obtain resident accommodation for members during these days, but if any members

wish to have hotel accommodation booked for them they should apply to the Secretary.

### Subscriptions.

There are still many outstanding subscriptions and it is hoped that they will be sent to the Secretary at Whitelands College without delay.

### Students' Handbook of School Hygiene.

At its meeting at Oxford in July last, the Hygiene Section asked the Council and Branches to consider the advisability of the T.C.A. instituting a Trust and Editorial Board to prepare and publish a handbook on the subject, and to revise it biennially. Mr. H. V. Davis (Crewe Training College) has drawn up a very useful and suggestive preliminary memorandum on such a book and will, no doubt, be glad to supply copies to branch secretaries to facilitate discussion.

## BIOLOGY AND HYGIENE.

The "Short Course" organized by Dr. Crowley and Dr. W. K. Spencer on behalf of the Board of Education, and held at Oxford from July 11th to 25th, was attended by over a hundred Training College lecturers in hygiene, science, physical training and principles of teaching. Nearly all, including professors and guests, were given accommodation in St. Hugh's College and its hostels, and the opportunities for meeting thus provided added greatly to the value of the course. The garden and tennis courts were much appreciated and the river attracted many members in their spare time!

The Duchess of Atholl attended the morning lecture on July 15th and at its close she addressed the audience, afterwards lunching at St. Hugh's. Mr. Ward, Miss Monkhouse, Dr. Lilian Wilson and Miss Perry, of the Board of Education, and several principals of colleges also visited the course. Lectures and demonstrations were given at the University Museum. Demonstrations were conducted by Professor J. S. Huxley, Dr. W. K. Spencer, Miss Talbot, Mr. G. R. de Beer and Professor Pear, and Dr. Hutchison, of Lowestoft, exhibited some remarkable biological films, including series of the amoeba, paramoecia and the hatching of herrings' eggs. The laboratory assistants also gave valuable help in connection with modern laboratory technique. A lecture on the teaching of hygiene in training colleges was given by Mr. Morgan, Bristol University, and this has been circulated to the colleges for their fuller consideration.

Courses of lectures, the majority of which were illustrated by lantern

slides, were given by Professor J. S. Huxley on biological problems, Professor Stopford on form and function, Dr. Leonard Hill on hygiene, Professor Winifred Cullis on physiology, and Professor Pear on psychology. Mr. G. R. de Beer lectured on "The Evolution of Man." All the lectures were interesting and inspiring. The lecturers in the various subjects dealt with the results of recent research work, a knowledge of which should prove invaluable in its bearing on many problems of education.

In addition to the lectures and demonstrations there were informal meetings and discussions, the results of which will be circulated to the sections. A feature of the course was the publication, for members, of type-written abstracts of the lectures with bibliographies. This was made possible by the help of volunteer reporters and editors.

At the closing session congratulations were offered to Professor Huxley and Dr. Crowley on their new appointments. Hearty votes of thanks were accorded to Dr. Crowley and Dr. Spencer for organizing the course, and also to the Conveners for undertaking the hostel arrangements. The Conveners take this opportunity of thanking the authorities of St. Hugh's for their generous hospitality, and especially Miss Salt, who was ever ready to make arrangements for the comfort of her guests. They also wish to thank all who helped in the preparation of reports, and contributed in many other ways to the success of the course.

A.M.M.  
K.J.D.

## CONDITIONS OF SERVICE.

We are indebted to the Rev. R. Hudson, who has given devoted service to the members of the Association during the passage of the Superannuation Bill, for the following notes on the Teachers' (Superannuation) Act, 1925.

This Act comes into operation on April 1st, 1926, and then takes the place of the Superannuation Acts, 1918 to 1924.

The scheme is now definitely "contributory"; it is intended that the contributions will be sufficient to

meet the benefits for service given after the Act comes into operation ; the cost of benefits in respect of service before that date, except in so far as it is met by the teachers' contributions from 1922, must be met by the Treasury; and also the cost of administration will be defrayed by the Treasury. The financial stability of the scheme will be reviewed after successive periods of seven years.

The total contribution to be made in respect of " contributory " service is 10 per cent. on the salary ; 5 per cent. is paid by the teacher ; the remaining 5 per cent. is paid by the employer, though no contribution is to be made by the employer in respect of any period of service before April 1st, 1928. If the L.E.A. is the employer then their contribution will be treated for grant purposes as if it were a payment for salary.

The " annual allowance " and the " lump sum " made to teachers who retire after reaching the age of sixty are calculated on the same arithmetical basis as before, viz. : one-eightieth, and one-thirtieth of the " average salary " for the annual allowance and lump sum respectively, for each completed year of " recognized " (present Act) and " contributory " (new Act) service ; the number of years thus brought into account is subject to a maximum and minimum limit.

The upper limit of the annual allowance is one-half of the average salary ; and of the lump sum is one and a half times the average salary. The minimum number of years of recognized and contributory service together which qualify for benefits on retirement after reaching the age of sixty are : (a) there must be not less than ten years of such service ; and (b) (i) there must be not less than thirty years of service made up of recognized, contributory and " qualifying " or (ii) the number of years of recognized and contributory service together must be not less than *two-thirds* of

the number of years between the date on which the teacher was first employed in such service and the date of attaining the age of sixty-five ; or (iii) for a teacher who accepted the 1898 Act the number of years of recognized and contributory service must be not less than *one-half* of the number of years between the date of certification and the date of attaining the age of sixty-five.

A reduction of the number of years required is made in the case of a married woman who can reduce the aforesaid period of thirty years by the number of completed years (not exceeding ten) during which she was while married absent from recognized, contributory, or qualifying service.

In respect of " breakdown " and " death " gratuities some small modifications have been made, and these are in favour of the teacher.

The Act only applies to service in England and Wales. But the Board may make schemes for reciprocal treatment with any part of H.M. Dominions where there is a statutory superannuation scheme for teachers in force. Otherwise a teacher employed in full-time teaching service in any part of H.M. Dominions outside the United Kingdom may for a period of four years keep up beneficiary rights under the Act by paying the full 10 per cent. contribution. Also the same privilege applies to a period up to one year of absence in the United Kingdom from contributory service. There is now reciprocity between the English and Scottish Teachers' Superannuation Acts.

There are important conditions which benefit those whose service has been partly recognized or contributory school service and partly in a University having its own contributory superannuation scheme.

The service of educational organizers, " which to a substantial extent involves the control or supervision of teachers," has been brought under

contributory service and thus becomes beneficiary service under the Act.

Better terms for the refund, where necessary, of contributions are given than in the 1922 Act. When a teacher withdraws from contributory service for a continuous period of one year, or in special circumstances for a shorter period, the contributions are returnable at 3 per cent. compound interest. This cancels all beneficiary rights under the Act; but if at a later date the teacher wishes to return to contributory service, all rights can be restored by a repayment of former contributions at  $3\frac{1}{2}$  per cent. compound interest.

Those serving in the capacity of a teacher "of such kind as may be prescribed," in a grant-aided nursery school, are brought under the Act.

This Act does not apply to any teacher who did not accept the 1918 Act; but such a teacher can accept the 1925 Act on giving notice within three months after April 1st, 1926.

Two very important principles have been introduced into this Act:—

(1) The benefits under the Act are now the absolute right of teachers in contributory service; it will be remembered that in the 1918 Act it was specifically stated that "nothing in this Act shall give any person an absolute right to any superannuation allowance or gratuity."

(2) Before the Board ask the consent of the Treasury to the "Rules" which they must issue for the carrying of this Act into effect, they must consult representatives of the L.E.A.'s and of teachers affected.

(*N.B.*—These short notes on the Teachers' (Superannuation) Act, 1925, are given for the general information of members of the Training College Association, but before any claim is made to the Board the actual terms of the Act should be consulted. The Council of the T.C.A. is always glad to advise members as to their position and beneficiary rights under the Act.)

It is expected that before very long the Board will proceed to set up machinery to deal with the salaries of principals and lecturers of Training Colleges. They have intimated that for the present they are prepared to recognize salaries paid on the same basis as last year. The Council of the Association is in touch with the Board and has its case quite ready. Meanwhile, we can only counsel our members to await events patiently.

Since the last issue of the BULLETIN several members have asked and received advice respecting pensionable service, conditions for return of contributions on marriage, etc.

T. P. HOLGATE.

### IN MEMORIAM.

On September 24th there passed away Hilda Mary Davis, student of Whitelands College from 1897-1900, and Lecturer in History from 1900-1925. Miss Davis was one of those rare teachers at home equally with the youngest children and the most mature students. Her teaching gifts were of the highest order and no pupil who came under her influence failed to develop in the power of independent thought and in the habit of study.

She combined in a most unusual degree the scholar's balanced judgment and the artist's suggestiveness and quick perception.

For twenty-eight years she gave in fresh and unstinted measure the best of her life and gifts to the College she loved, and in the schools where the large body of students whom she inspired now teach, the fairest fruits of her work will be found.



